

**GET FAST!** Seven Speed Secrets—page 160

RADIO CONTROL

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WINNERS' CIRCLE SWEEPS

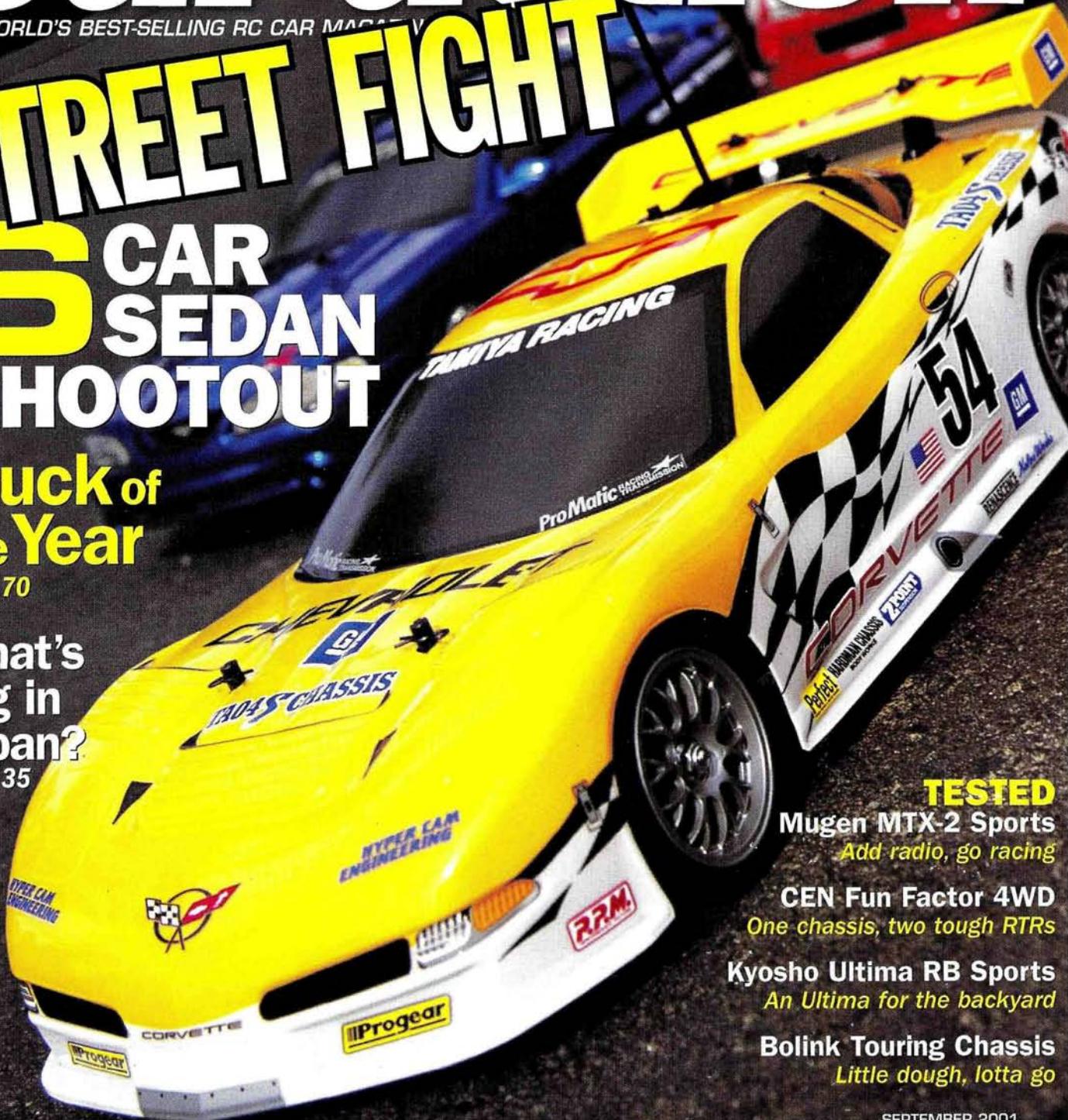
## STREET FIGHT 6 CAR SEDAN SHOOTOUT

### Truck of the Year

page 70

### What's Big in Japan?

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#### TESTED

Mugen MTX-2 Sports  
Add radio, go racing

CEN Fun Factor 4WD  
One chassis, two tough RTRs

Kyosho Ultima RB Sports  
An Ultima for the backyard

Bolink Touring Chassis  
Little dough, lotta go

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## RC EMERGENCY!

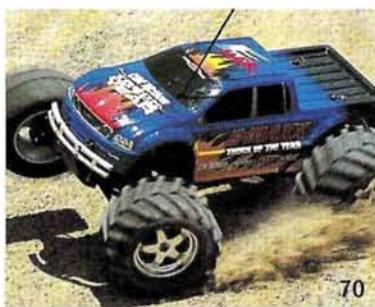
Trackside Quick Fixes



# RC Car Action

Volume 16 ■ Number 9 ■ September 2001

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by the staff of *RC Car Action*



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# Ready to go faster?

I always enjoy working on car and truck comparison tests, and we have a big one in this issue with our Ready-To-Run Electric Touring-Car Shootout (I know, it's a mouthful). All of the cars we tested far outclass the vehicles we used to consider "ready to run." Remember when some "RTR" kits didn't even include radio gear, let alone installed radio gear? I do. Of course, things are much better now, thanks in no

small part to Traxxas—the real pioneer of RTR RC—and its line of RTR vehicles. It's highly doubtful that we would see the wide proliferation of completely assembled (as in filled shocks, painted bodies and installed radio gear), truly ready-to-run vehicles if Traxxas hadn't proven the success of the formula. But there's more to the formula than completeness; nitro-power, and more explicitly, nitro speed, were and continue to be a large part of the RTR success story for Traxxas and its competitors. Nitro says "fast," and as the engines in RTR cars have grown from .12 to .15 and even .16 power, and cars have become better equipped (2-speeds and full bearing sets are common), RTR top speeds have climbed steadily. Traxxas (there's that name again) even put a big ol' "50mph!" right on the box when it released the Nitro 4-TEC sedan. Who doesn't want to go fast?

Which brings me back to the electric RTR touring-car shootout. The electric ready to runs have benefited from all the advances in the nitro RTR scene. Factory-finished bodies? All but one of the six cars tested include them. Installed radio gear? Of course; some even have electronic speed controls. Ball bearings? Quite common. And fast? Well, not so much. The utterly ordinary silver-can 540 motor, almost completely unchanged since it was liberated from an electric drill (as the story goes) so many years ago, continues to be the standard-issue powerplant for electric RTRs and kits that include motors, despite the giant leaps in motor technology we've enjoyed since those early days. It's time for a change. Today's cars and trucks can handle more speed. They're more than durable, have better suspensions, and radio technology has long since matured. And if I may speak for all electric RC hobbyists, we simply want electric cars to go faster. Traxxas (again with the Traxxas!) was first to aim higher with its 20-turn Stinger motor, and Associated followed suit with its own 20-turn motor. These are a great improvements over vanilla 540 motors, as the speed ratings in the touring-car shootout will attest, yet they are still simple sealed-endbell designs that are presumably inexpensive to produce.

I'd like to see 20-turn motors become the new standard; the greater speeds will attract more people to the hobby, help shops sell kits and keep those RC newcomers satisfied longer. Eventually, the RTR customer will want an even faster motor—as we all do—but a 20-turn won't have newcomers wanting for more speed after the first day, or the first week. The nitro guys get to go fast right out of the box; so should the electric guys.

## IN THIS ISSUE

We picked our Car of the Year in the last issue, so you know what that means: it's time for Truck of the Year! This year's winner is the most innovative and best-performing truck (in its class) to hit the hobby in a long, long time, and I think you'll agree it deserves Truck of the Year status.

Speaking of trucks, Pro-Line recently held an event at its new off-road track that focused on the most popular truck in RC today: the Traxxas T-Maxx. In addition to the usual nitro-power classes, a dedicated T-Maxx class was the highlight of the Pro-Line Nitro Maxx Challenge, and there were all sorts of sideshow contests to keep the mood light. Greg Vogel attended the fun-first event and got shots of all the action, and he even manned the radar gun for the top-speed competition!

We're constantly on the lookout for the newest RC stuff, and the annual Shizuoka Hobby Show in Japan is always a hot spot for new gear. We shipped Kevin Hetmanski off to the island nation (don't worry, we poked lots of air holes in the box) so he could roam the isles and bring back shots of all the upcoming releases. Kevin got the goods, which you can check out in Inside Scoop. We'll test it all as soon as we can!

See you next time,

Peter Vieira  
Executive Editor



# RADIO CONTROL car action

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## Pro 3: standard pinions do fit

I really enjoyed the Pro 3 review and agree that it's a great car. The article says that you have to use long-shank pinions, but you actually don't. I use regular Robinson pinions on my Pro 3. I just thought you should know. I have a tip, too: you can cut a notch in the foam bumper and use the molded-in hole in the bumper support to hold your transponder. Remember, your car doesn't cross the finish line until the transponder does, so better to keep it up front! [email]

CHAD JEREMY

You're right, Chad; standard pinions do fit. The Pro 3 includes a long-shank pinion, and the spur gear is well offset from the motor plate due to the thickness of the spur-gear mount and the pulley beneath it. I incorrectly concluded that the kit requires long-shank pinions. An honest mistake, but a mistake nonetheless! And thanks for the transponder tip.

-Pete

## What about the Yokomo YR-4?

I have a problem with the beginning of the HPI RS4 Pro 3 article in the August issue. You said that "... two brands deserve credit for the late '90s touring car explosion," Tamiya and HPI. What about Yokomo? Yokomo had the first purpose-built racing sedan long before the RS4 came along.

Also, HPI's RS4 Pro hardly made the two-belt tourer standard TC stuff. If you recall, HPI changed the



car to two belts because people had complained that the original car wasn't as efficient as the two-belt tourers of the day (I still remember the *RC Car Action* issues where you guys talked about that very subject). So how can they pioneer something and change their stuff to be like others at the same time? You can't; it's either one or the other.

Also, you laid down a timeline of sorts that seemed to say HPI's Pro 2 was out before Yokomo's competitive touring car. What about the entire YR4 series, which started even before HPI had a touring car? I'm confused. Your business is RC, so you know the true timeline and which two companies really started the whole touring-car thing. So why write that HPI led the way for everyone except Tamiya?

I know that when you write something, you can't please everyone, but the facts are simple! Tamiya had the first TC, but Yokomo, without a doubt, had the first purpose-made racing TC. Yes; HPI brought the popularity of touring cars to the USA and made it even more popular, but that doesn't mean we can rewrite history. Thanks for listening.

GREGORY CRESWELL  
Lawrence, KS

In a discussion of which company first developed dual-belt-drive in a touring car, you have to give credit to Yokomo, and I have in the past. But if you want to discuss which brand crystallized the essence of the modern two-belt touring car and most directly influenced the touring designs that came after it, as I did in the intro to the RS4 Pro 3 review, then I think credit belongs with HPI. As you said yourself, "HPI brought the popularity of touring cars to the USA and made it even more popular." So, I guess you agree with me!

-Pete

## Inside line on PowerLine

I have a Traxxas Nitro 4-TEC, and I really liked the "accessory overkill" version you guys built for the *RC Touring Cars* special issue. I wanted to get some of the PowerLine stuff you used, but I can't seem to reach the company. How can I get their stuff? [email]

GREG TRUDY

PowerLine's contact info changed after we finished *RC Touring Cars*; you can reach them at: PowerLine Racing Products Inc., 2179 E. 8th St., Brooklyn, NY 11223; (718) 645-6080; [www.powerlineracing.com](http://www.powerlineracing.com);

[powerlinedist@aol.com](mailto:powerlinedist@aol.com). That should do it!

-Pete

## Racing Checklist

I plan to get into racing pretty soon, and I'm going to get a Team Associated RC10T3 factory truck. I have been wondering what gear I will need to race. I read almost every issue of *RC Car Action*, but I haven't found the answer in any of them. Great mag and keep on trucking! [email]

BRAD

Every "Track Test" has a "You'll Need" section that lists all the stuff you'll need (get it?) to complete the kit. But if you're going racing, you should add some items. First, you'll have to finish building the truck; that will require a transmitter and receiver, a steering servo, an ESC, a motor, tire glue and body paint. To get through a day of racing, you'll also need at least three battery packs and a charger to charge them. Ask a knowledgeable racer or hobby-shop staffer to help you select the best racing gear for your budget, and visit the track to see which tires are hooking up. If the T3's Pro-Line Bow Ties aren't the hot setup, buy the tires that work. Later, you can add a battery discharger, pinions, spur gears and a range of shock oils to your racing-gear stash. Then you can get a folding pit table, a sunshade and a portable compressor ... I could keep going forever with this stuff!

-Pete

## YOU SAID IT

"RC monster trucks ... we had to have one!"

I have a 2-year-old son named Rain who loves anything with wheels. A few months ago, Rain and I were surfing the Web looking at monster truck websites (Rain especially loves Monster Jam). One link led to another and we ended up watching an MPEG of some RC monster trucks... we had to have one! We ended up getting a CEN Fun Factor 4WD monster truck. When I purchased the kit, I also picked up the *RC Car Action* 2001 Buyers' Guide. We got the truck home, got the tires glued into place, charged up the glow-plug igniter and we were ready to go—almost.

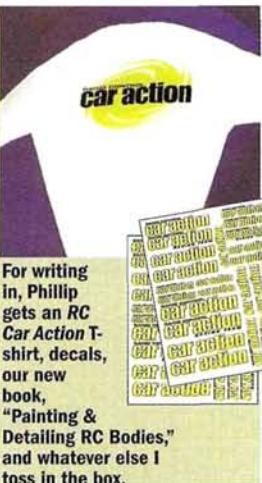
We had a heck of a time getting the engine to start and keep running. I looked in the 2001 Buyers' Guide, and on page 118, the "Get that engine running right!" tips got us up and going in no time (the glow plug was loose). We then broke in the engine properly, leaned it out and have been having a blast with the model ever since. Rain's favorite Monster Jam truck is Grave

Digger, so we got a Parma body and new body posts to make it fit properly on the CEN model. We also used a "Pit Tip" from the July 2001 issue and placed green balloons over the shock springs. (What a great tip!) I have attached two pics for you to look at.

PHILLIP COPPEDGE  
Bristol, VA

I'm always happy to learn how someone went from not even knowing about the RC hobby to becoming fully immersed in it, and I'm glad you have found *RC Car Action* and the *RC Car Action* Buyers' Guide so helpful. I'm printing your letter because I also had a good time with the CEN Fun Factor MT (tested in this issue), and I'm hoping that any readers who haven't taken the plunge and joined the hobby will be inspired by your successful start.

-Pete



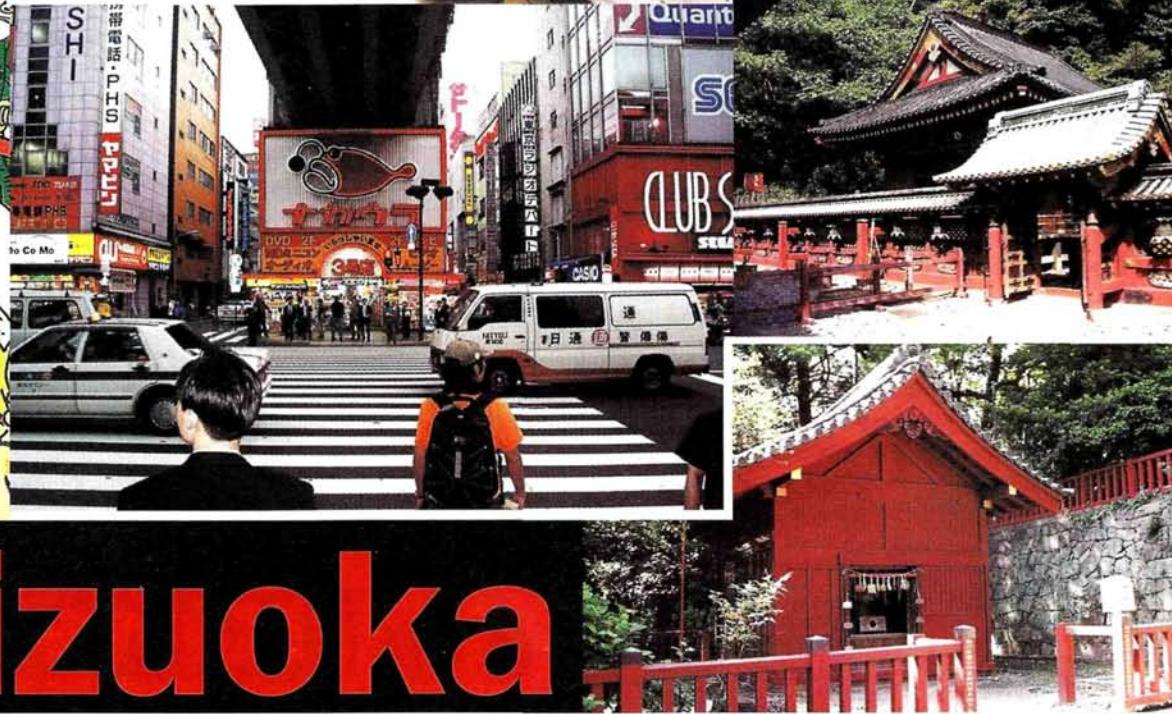
**WRITE TO US!** We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

EMAIL ■ Derek Buono: [derekb@airage.com](mailto:derekb@airage.com) ■ Chris Chianelli: [chrisc@airage.com](mailto:chrisc@airage.com) ■ George M. Gonzalez: [georgeg@airage.com](mailto:georgeg@airage.com) ■ Bob Hastings: [bobh@airage.com](mailto:bobh@airage.com) ■ Kevin Hetmanski: [kevinh@airage.com](mailto:kevinh@airage.com) ■ Steve Pond: [stevep@airage.com](mailto:stevep@airage.com) ■ Peter Vieira: [peterv@airage.com](mailto:peterv@airage.com) ■ Greg Vogel: [grevg@airage.com](mailto:grevg@airage.com)

I'M TAKING OVER INSIDE SCOOP! I'm fresh from a trip to Japan (well, as fresh as a guy can be after a trip that long), where I snapped shots and snooped the scoops on all the latest gear at the Shizuoka Hobby Show. And as you can see, your buddy the Hingeboy is an international hit with the ladies!



BY KEVIN  
"HINGEBOY"  
HETMANSKI



# Shizuoka

## PERFECT PAINT AND A PUMPED-UP TG10

Tamiya TG10R and screened bodies

If you like the Darth Vader looks of Tamiya's ultra-low-profile TGR race machine, but you wish it was offered in  $\frac{1}{10}$  scale, or if you're into the TB Evolution but wish it was nitro-powered, you're in luck: the TG10R is here. It looks as if Tamiya borrowed the TB Evo's suspension components and shaft-drive system and combined them with a TGR-style graphite and aluminum chassis. The car certainly looks competitive. And speaking of looks ....

Tamiya has always been known for its crisply molded and intricately detailed bodies, but duplicating the box art of a Tamiya kit still required the



skillful application of paint and decals. That's changing! Tamiya has followed its gorgeous pre-painted Corvette C5-R TA04S (on the cover of this issue) with a Mercedes DTM shell on the TA04S chassis.

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; [www.tamiya.com](http://www.tamiya.com).

## Hop-Ups now, Mini RS4 later Orion Mini RS4 upgrades •



The HPI Mini RS4 has yet to hit the streets, but hop-up parts are already available for it! The folks from Orion offer batteries and an ESC for the tiny RS4. The ESC is super thin and small, yet it's equipped with a push-button setup. The batteries are offered in 1000 and 1500mAh capacities for long run times. Now, if I could just get my hands on a Mini RS4!

Team Orion Inc., 22601 La Palma, Ste. 103, Yorba Linda, CA 92877; (714) 694-2812; [www.team-orion.com](http://www.team-orion.com).



## CALLING ALL CARS KO Propo VFS 2000 ESC

KO now offers a dial-a-program ESC and an optional handheld input device much like Novak's Pit Wizard. The VFS 2000's small size is a plus for tight touring chassis and  $\frac{1}{12}$ -scale cars, and solder posts make it easy to swap the unit from car to car without any need for hack splices. A push-button on/off switch is also part of the package.

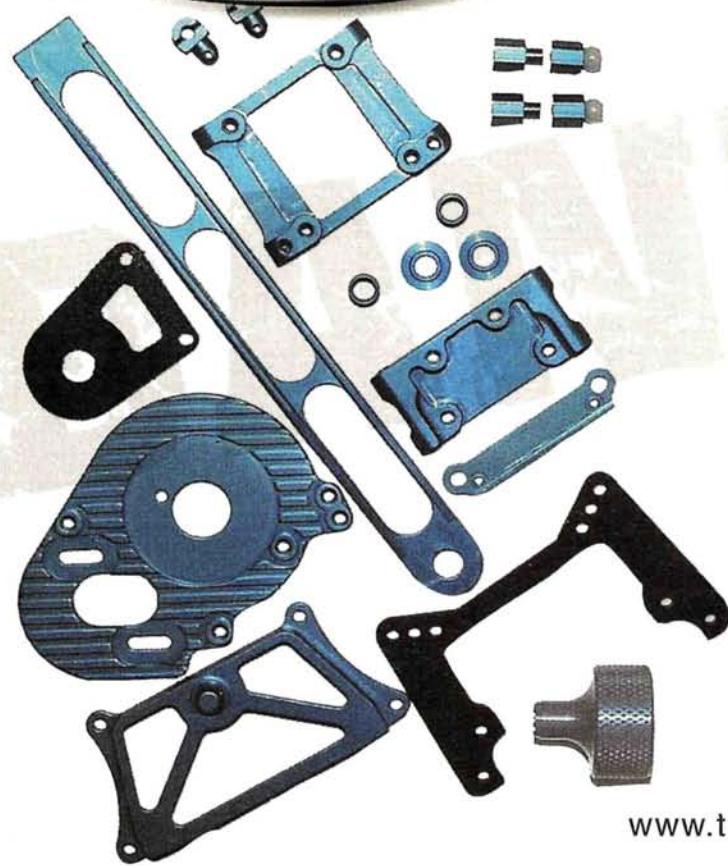
KO Propo USA Inc., 16012 South Western Ave., Ste. 308, Gardena, CA 90247; (310) 532-9355; [info@kopropo.com](mailto:info@kopropo.com); [www.kopropo.co.uk](http://www.kopropo.co.uk).



## REAR-EXHAUST O.S. O.S. .12 TR ENGINE

Fans of exotic .12 power can add O.S. engines to their wish lists now that the popular brand has added a rear-exhaust .12 to its line. The .12 TR will feature a reliable, high-performance ABC piston and sleeve with a rear exhaust port, a machined blue-anodized heat-sink head and a slide carburetor. A .15 CV-R side-exhaust engine is also scheduled for release.

O.S. Engines, [www.osengines.com](http://www.osengines.com); distributed by Great Planes Model Distributors, 2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; [www.greatplanes.com](http://www.greatplanes.com).



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TK5027	Blue Aluminum Slipper/Shock Wrench	\$21.99
	Allows slipper adjustments without removing the rear tire. Tightens shock mounting nuts without scratching shock body.	
TK5028	Blue Titanium Tie Rod Set	\$26.99

GS 1/10GTツーリングカー



### GS RACING VISION KRS-1

**G**S continues to deliver new nitro designs; the latest is this 200mm tourer. The Vision KRS-1 is a pivot-ball car with 2-speed transmission, triple-belt drive train, central fuel tank and on-road-style servo mounting. The Vision will accept .12 and .15 rear-exhaust engines. No word yet on availability, but it looks ready to me!

### STORM CLOUDS GATHERING GS RACING STORM MT

It looks as if the Storm MT will have many of the same features as the Storm buggy, including its chassis, suspension and much of its drive train. The most noticeable difference (besides the massive monster-truck tires) is the humongous spur gear that gives the MT a suitably high gear ratio to help get its big wheels rolling. GS has also bolted a new shock tower to the front bulkhead along with long-stroke shocks and springs that can keep the truck stable.



**GS Racing:** distributed by Horizon Hobby Inc., 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; [www.horizonhobby.com](http://www.horizonhobby.com).



### On-Road Inspired Yoke Yokomo GT-4 R

**T**he GTP-type wedge body style that's popular among  $\frac{1}{8}$ -scale on-road racers has been adopted by Yokomo for its GT-4 R, and it has borrowed some on-road tech as well. The car features foam tires, a locked rear diff and one-way bearings in each of the front hubs. Could this be the next big thing, or is it just an RC sub-genre? We'll see, but Yokomo is on the right track. I'm betting the high-downforce body and classic on-road setup will be tough to beat.

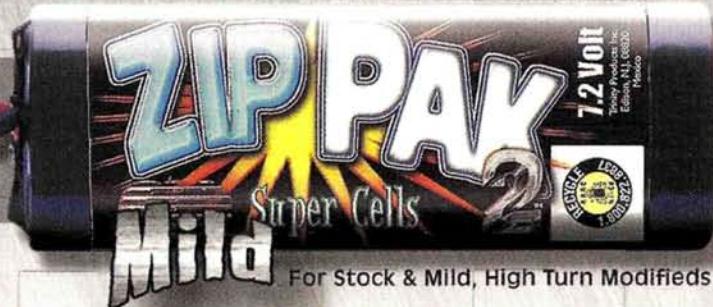
**Yokomo USA**, Airport Business Center, 17951 Skypark Cir., Ste. K, Irvine, CA 92614; (949) 252-8663; [www.yokomousa.com](http://www.yokomousa.com).



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## LRP Takes Charge

Germany's big name in ESCs also offers a full line of chargers; these three are the newest. The Quick & Easy model is a simple push-button peak charger with a 5A current; the NiMH Digital handles (surprise) NiMH packs; and the Accu Trainer is a discharger designed specifically for NiMH cells. It features variable discharge current and a 5V cutoff. The chargers can handle 6 to 8 cells, and the Accu Trainer will dump 6- or 7-cell packs.

LRP; distributed by Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; [www.rc10.com](http://www.rc10.com); [www.teamassociated.com](http://www.teamassociated.com).



## ITALIAN STALLION CRONO RS01

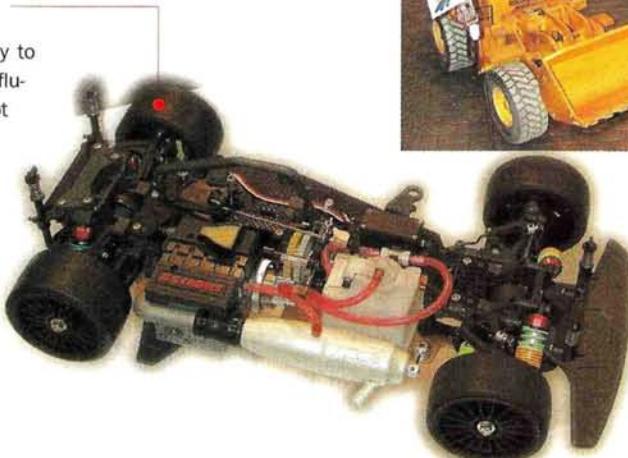
Crono's RS01 looks similar to the previous Team Expert kit, but all the blue-anodized parts have now been polished to a bright shine. It also looks as if the front upper-arm brace has been modified so that it can be mounted directly on the top of the steering posts, and there's no need for an upper plate. Other changes include new front and rear shock towers and pivot-ball-mounted steering knuckles. Front and rear chassis-stiffening tie rods and white rims and a wing will be standard equipment on the new RS01.

Crono; distributed by SVM Racing, 4846 Hwy. 220, St. L'Elie D'Orford, Quebec, Canada J0B 2S0; (819) 847-1050; [www.svmracing@hotmail.com](mailto:www.svmracing@hotmail.com).

## From the Kyosho Booth

### FW04 Comp IV

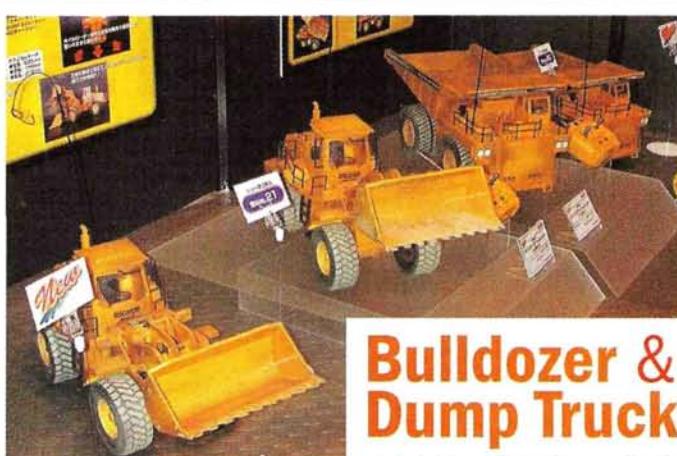
It looks as if Kyosho is getting ready to offer a tricked-out version of the influential FW04 chassis that will accept the O.S. LD engine and might include the unusual pearlescent tuned pipe seen here. Its other racing features include a carbon-fiber upper deck, a 2-speed transmission, aluminum shocks with dual-rate springs, sway-bars, a thick chassis (with countersunk holes) and sticky racing tires.



### Inferno 7.5-flavored LandMax

Kyosho's .21-powered  $\frac{1}{8}$ -scale LandMax rally and street cars have just been updated with the latest MP 7.5 platform. Like the earlier LandMax cars, the new version will feature short suspension arms (to retain the scale appearance under the body), treaded tires and plastic shocks.

Kyosho; distributed by Great Planes Model Distributors, 2904 Research Rd., P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; [www.greatplanes.com](http://www.greatplanes.com).



### Bulldozer & Dump Truck

Oh ... Kevin likes. If you haven't lost that childhood fascination with heavy equipment, Kyosho is ready to equip your RC construction site. The Dump Truck and Wheel Loader ("bulldozer" to you and me) are part of Kyosho's new construction machinery series. They are sold assembled and weathered to look like authentic earth-moving equipment. The Wheel Loader is  $\frac{1}{14}$  scale and features 4-wheel steering and a working bucket; the Dump Truck is  $\frac{1}{24}$  scale, and its bed can be raised and lowered by remote control. The trucks operate on separate bands so you can operate both at the same time. Charge up enough packs, and you could dig your own in-ground pool by the end of the summer. ■



# Readers' Rides

**Win a one-year subscription to *Radio Control Car Action* magazine!** Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to *RC Car Action* and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

## Massimo and Alessandro Tutone, Palermo, Italy Custom Nitro Dragster

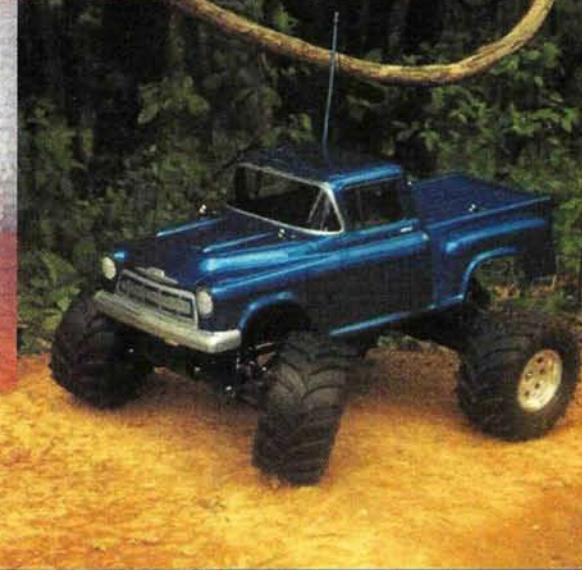
This dragster was a cooperative effort by brothers Massimo and Alessandro. The nitro-powered rail is custom-made from aluminum and covered by a Bolink body. The racer has a Kyosho .11 engine, Futaba radio and homemade cork-pad brake system.



**Mike  
Kalina,  
Orrville,  
OH**

## Traxxas T-Maxx

Owing to its aluminum skid-plates, ladder braces and bumper mounts, this is possibly the most heavily protected T-Maxx ever to cross the dining room table. Mike also outfitted the truck with a Pro-Line F350 body and an MIP tuned exhaust.



## Rodney Spitzer, Jefferson City, MO Traxxas Stampede

Rodney painted this electric Stampede like his best friend's '57 Chevy show truck. The Parma-body monster has a Chameleon 19-turn motor, Novak Explorer II ESC and Pro-Line Masher tires.



## Donald Meszares, St. Augustine, FL Team Associated RC10L3 Touring

There's a lot to like about Associated's RC10L3 Touring car, writes Donald. He likes the wide wheels and tires and that the chassis accommodates 190 and 200mm bodies such as the Protoform C5 Corvette that he painted. The Chevy is powered by 3000mAh batteries, and it has a Tekin 420 speed control. When the car isn't being raced, the untrimmed body posts are great for playing ring toss.

## Readers' Rides

### Don Valley, Wyoming, MN **MRC Nitro Thunder King**

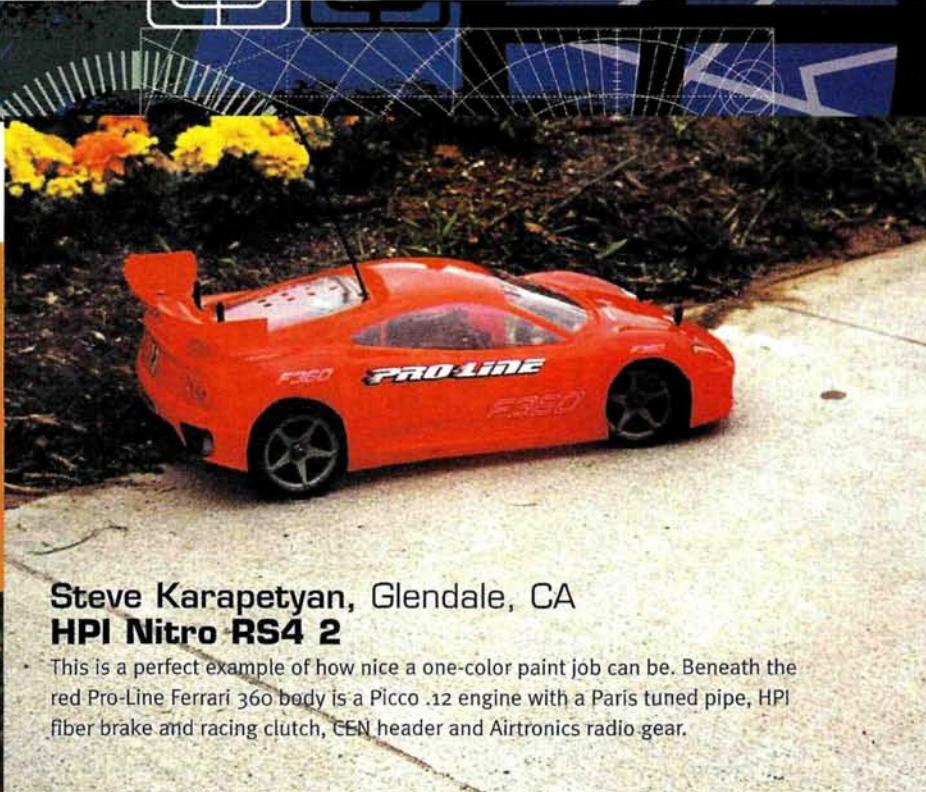
After 3 years, this Thunder King is still going strong. The "World-Scale" truck is equipped with full ball bearings, Futaba radio system, Megatech header and CVEC tuned pipe. The flame job was painted by R/C Car Kings.



### Michael Pernicano, Palmdale, CA **HPI Nitro Rush**

If you attend the Sportsman Gas division races at Hot Rod Hobbies in Santa Clarita, CA, you may catch this HPI Nitro Rush out on the track. The 3-tone stadium truck features a graphite upper deck and shock towers for weight savings, O.S. .12 CV engine and Pro-Line Silverado body.

Apparently, Michael races with the right attitude; a small flag on the antenna reads: "Good truck—bad driver."



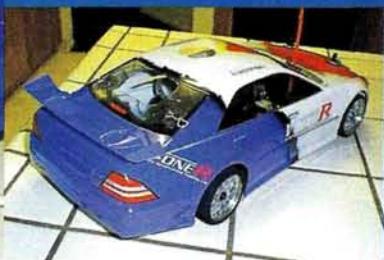
### Steve Karapetyan, Glendale, CA **HPI Nitro RS4 2**

This is a perfect example of how nice a one-color paint job can be. Beneath the red Pro-Line Ferrari 360 body is a Picco .12 engine with a Paris tuned pipe, HPI fiber brake and racing clutch, CEN header and Airtronics radio gear.



### Joseph Rivas, Bakersfield, CA **Kyosho V-One R**

We knew it wouldn't be long before the Kyosho V-One R showed up in "Readers' Rides." This hot-looking tourer sports an HPI AMG Mercedes body, Hitec and Cirrus servos, an Airtronics radio system, an Associated tuned pipe and Traxxas wheels with custom foam tires.



## Pit Tips

ILLUSTRATIONS BY  
DAVID BAKER

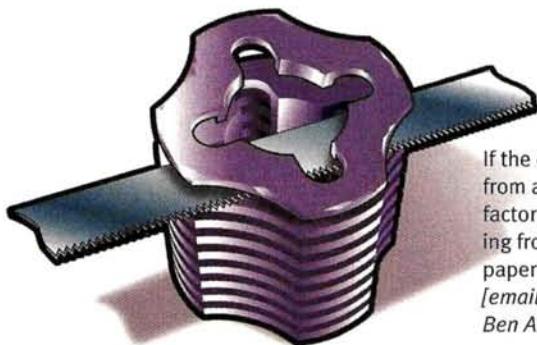
**WIN AN OFNA Z-10 RALLY!** *Radio Control Car Action* will give a 6-month subscription (or extend an existing subscription) to the author of each idea used in "Pit Tips." "Top Tip" winners will receive an OFNA Z-10 Rally kit. All published "Pit Tip" authors win an OFNA yo-yo. Send a rough sketch to Bob Hastings, c/o *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one nor return unused material.



### Easy Nerf Bars

Many full-size off-road racers use nerf bars for protection in the event of a rollover. You can create the same stylish and functional look by using drawer handles attached to an L-bracket fastened to your truck's chassis. The handles come in many colors, including chrome.

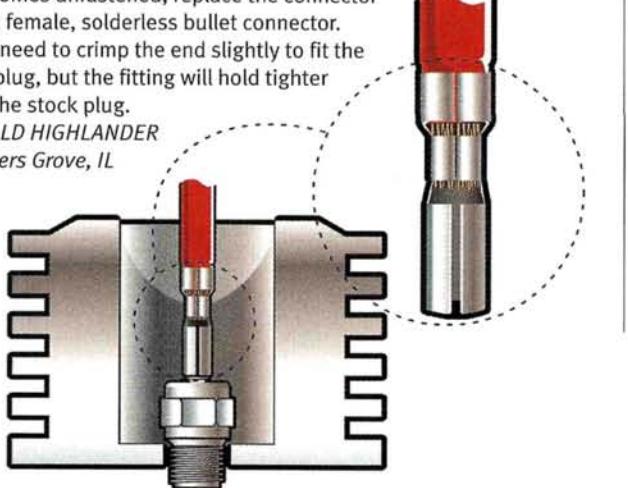
TROY AGNE  
New Milford, CT



### EZ-Start Glow Attachment

If your EZ-Start's blue glow-plug wire repeatedly comes unfastened, replace the connector with a female, solderless bullet connector. You'll need to crimp the end slightly to fit the glow plug, but the fitting will hold tighter than the stock plug.

DONALD HIGHLANDER  
Downers Grove, IL



### Rustler Quick-Change Battery

If you're tired of pulling off the strap to change the batteries on your Traxxas Rustler, affix one end of the strap with a light-duty spring and screw. This applies pressure that helps hold the battery in place yet enables you to simply lift and turn the strap out of the way during pit stops.

WILLIAM MOORE  
Bandera, TX



**TOP  
TIP**

### Scratch Solution

If the cooling head on your nitro car is scratched up from a mishap or two, you can restore it to that nice factory look. Use a file to carefully remove the anodizing from the top of the head. Then use fine-grit sandpaper to give the top a smooth, shiny finish.

[email]  
Ben Arlin



### Small-Parts Cleaning

Cleaning small parts can be a difficult task with conventional brushes and solvent. Try using an inexpensive sonic jewelry cleaner; it can be used on everything from engine components to airbrush nozzles.

PAUL PRENNA  
Dagus Mines, PA

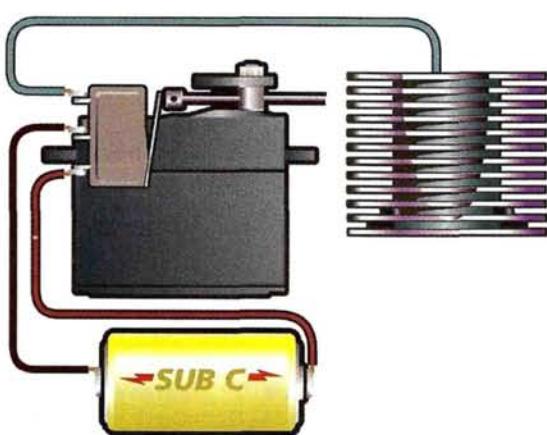
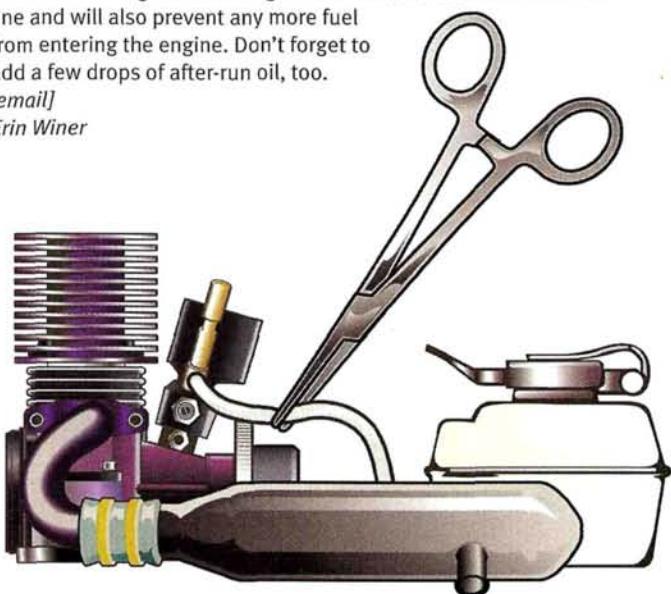
## Pit Tips

### Fuel Shutoff

Your engine can become clogged if fuel is left in the system for extended periods. When you're finished with your nitro car for the day, use a pair of forceps to close off the fuel supply to the carburetor while the engine is running. This will let the fuel burn off in the line and will also prevent any more fuel from entering the engine. Don't forget to add a few drops of after-run oil, too.

[email]

Erin Winer



### Low-Throttle Glow Igniter

An onboard glow igniter can make your engine less prone to stall at low speed or at idle. Solder a sub-C Ni-Cd cell to a small momentary switch and then connect the wires to a clamp-type glow igniter. Position the switch so that the throttle arm closes it at low throttle to power the glow plug.

WILLIAM HEMMINGSEN

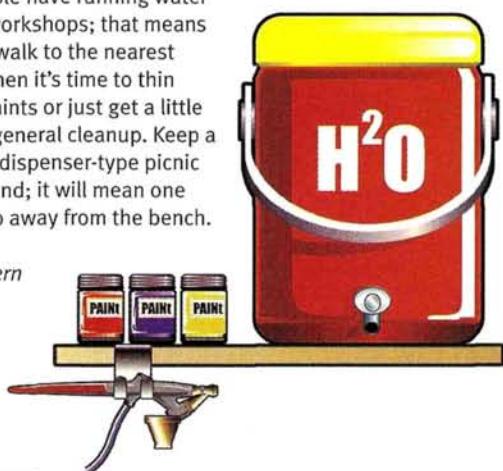
Flint, MI

### Workshop Water

Few people have running water in their workshops; that means taking a walk to the nearest faucet when it's time to thin acrylic paints or just get a little H<sup>2</sup>O for general cleanup. Keep a 1-gallon, dispenser-type picnic jug on hand; it will mean one fewer trip away from the bench.

[email]

Fred Fakern



### Preload Problem

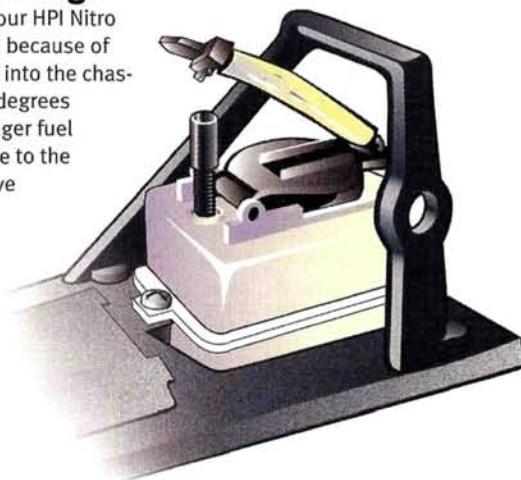
To prevent worn preload spacers from falling off your shocks, try adding a sleeve of shrink-wrap to hold the clips in place.

STEVEN MACGUILLEY  
North Hanover, NJ

### Easier Rush Fueling

It's difficult to refuel your HPI Nitro Rush with the body on because of the roll bar that's built into the chassis. Turn the tank 180 degrees (you'll need to add longer fuel lines), and add a zip-tie to the tank's cover; you'll have unrestricted pit-stop access.

MATT SCHILLER  
Germantown, NY



# Troubleshooting

BY GEORGE M. GONZALEZ

## PULVERIZED PIVOT BALL

I have a totally hopped-up T-Maxx that I enjoy running very much. I recently bought a set of Traxxas hard-anodized-aluminum pillow balls that are threaded into brand-new RPM suspension arms. My problem is that I snapped the lower right pillow ball during a race, and the pillow ball's threaded end is stuck in the suspension arm. Is there any way to remove it without damaging the suspension arm? I intend to put back the stock pillow balls, since they never failed, but I don't want to replace a perfectly good suspension arm.

[email]

BERRY LAMKI

There's hope. Use a rotary tool to slot the section of the pivot ball that's stuck inside the suspension arm, then use a flat-blade screwdriver to back it out. You can replace the pivot ball with a new Traxxas part, or you can try a heavier-duty ball from Hardcore Racing. Hardcore's titanium pivot balls for the Traxxas Maxx are just about bulletproof. Good luck.

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at *Radio Control Car Action*. Questions should be of a technical nature and should be emailed to [georgeg@airage.com](mailto:georgeg@airage.com), or addressed to Troubleshooting, *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

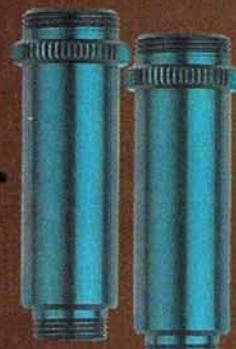


**Broken pivot ball?**  
**No problem. Just slot the pivot-ball stump with a cutoff wheel in your rotary tool, then use a screwdriver to back it out.**

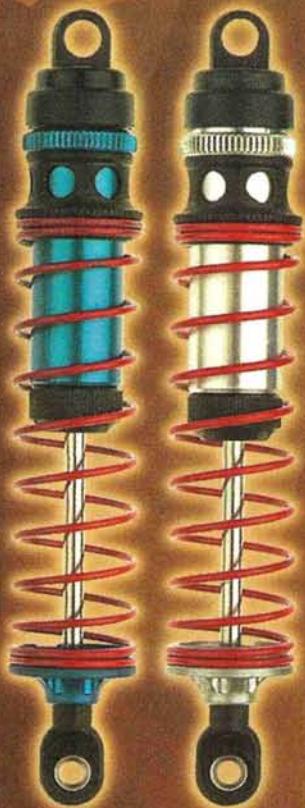
## TRAXXAS

### New Traxxas Aluminum Shock Components Work With Your Stock Parts!

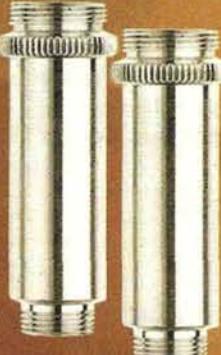
#### T-Maxx Blue Shock Bodies



CNC machined, blue anodized aluminum shock bodies, sold in pairs. RRP 8511



#### T-Maxx Silver Shock Bodies



CNC machined, natural silver aluminum shock bodies, sold in pairs. RRP 8510

#### Aluminum Upper Spring Retainers



Machined upper spring retainers, sold in sets of 4. RRP 8530-8mm, RRP 8520-4mm

#### 48P Absolute Series Pinions



Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428

#### Blue Lower Spring Retainers



Machined, blue anodized aluminum retainers, sold in pairs. RRP 8516

#### 48P / 64P SuperLite Aluminum Pinions



They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

#### 48P Hard Nickel Plated Steel Pinions



These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

#### Silver Lower Spring Retainers



Machined, natural silver aluminum retainers, sold in pairs. RRP 8515

## TOURING CAR TIGHTEN-UP

What can I do to get rid of the slop in my Nitro RS4's suspension? The front wheels wobble excessively, and it is hard to keep the car going straight. The steering is so loose that the wheels are off a couple of degrees in all directions. All the screws are tight, and I put O-rings on the ball joints and between the A-arms, the arm mounts, the steering knuckles and the C-carriers. The O-rings got rid of the slop, but now the suspension is too tight—so tight that the steering servo has trouble turning the wheels. I'm actually thinking about selling the car and buying a different one. I race this car every weekend, and the slop is starting to seriously affect my performance. Will any aftermarket parts help with my problem, or what else can I do? [email] ADRIAN

Instead of investing big bucks in another car, why don't you invest a few dollars on new suspension components? Molded parts wear, especially if you race every weekend. When your suspension components wear, you'll notice slop; and from your descriptions, I'd say that this problem has been overlooked for a long time. Install new suspension arms, front C-carriers and rear hub carriers. That should eliminate the excessive slop. If you don't want to invest in new parts, slide a thin washer onto the pins that secure the suspension arms to the arm mounts and those that secure the front C-carriers and rear hub carriers to the suspension arms. Be careful, though; if you install too many washers, you'll end up with the same binding problem as you've already encountered.



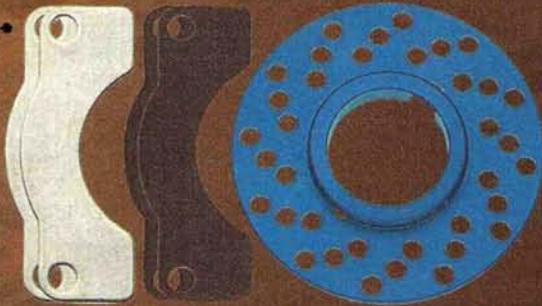
A little bit of play in a single hinge pin or ball cup is barely noticeable, but when all the parts have a little play, the total amount of "slop" in the system can be great. You can shim up hinge pins and squeeze ball cups to help tighten things up, but fresh parts are always best.

### NEW T-Maxx Steel Diff Gear Set



T-Maxx / E-Maxx differential gear set, includes: 1 bevel pinion gear, 1 bevel spur gear, 4 re-usable stainless steel phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

### NEW T-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. RRP 8560

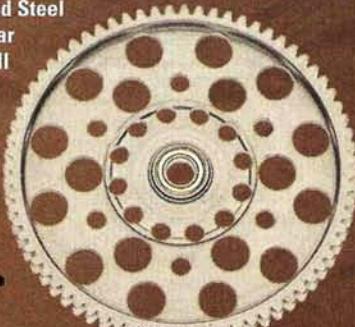
### T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue; RRP 8550 Natural Silver

[www.robinsonracing.com](http://www.robinsonracing.com)

### Hardened Steel Spur Gear With Ball Bearing



Precision CNC machined from solid steel, and then hardened, these spurs will last and last. RRP 8572 T-Maxx and Nitro Rustler, RRP 8565 Nitro Stampede

## ROBINSON RACING PRODUCTS

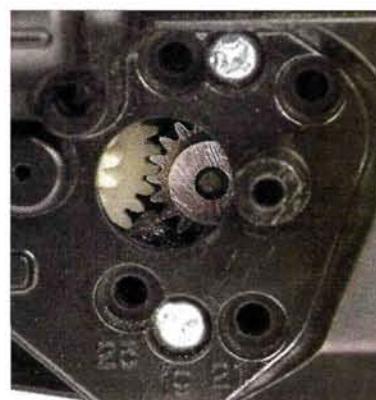
4968 Meadow View Drive • Mariposa, CA 95338 • Voice 209.966.2465 • Fax 209.966.5937

## Troubleshooting

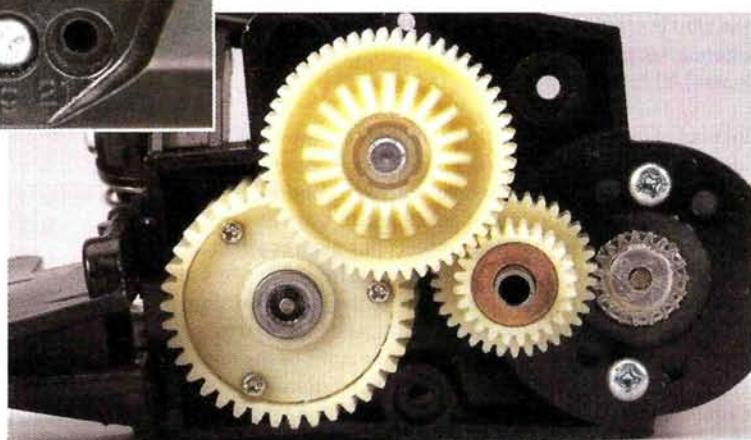
### STRIPPED SPUR-GEAR FIX

I recently purchased a Tamiya TL01 SVT Lightning, and the spur gear stripped. I replaced the Tamiya stock motor with a beefy, 16-turn Trinity Speed Gems Ruby. Is this too powerful for the Lightning? How can I fix my problem? Does any company make an aluminum or steel spur gear for the TL01 chassis? [email]  
**CALEB PHIPPS**

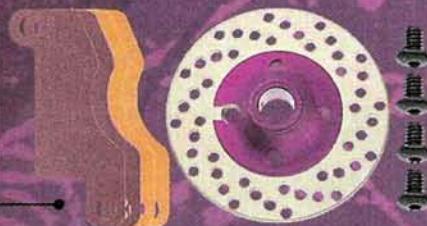
The 16-turn Ruby is a great choice for the TL01 chassis; don't install one with fewer turns, though. You should install a smaller pinion gear (fewer teeth) to reduce the car's gear ratio to accommodate the higher-revving modified motor, but the Lightning already has the smallest pinion the TL01 chassis can accept (19-tooth). The motor will probably run a bit hot, which can soften the plastic motor mount. Likewise, the friction of the internal gears' bushings may heat and soften the gears if subjected to extended continuous operation. This can lead to the stripping problem you mention. The best bet is to install bearings in the gearboxes (and hubs too, if you can afford them), and let the motor cool between runs. That should stop the stripping.



Left: the TL01 chassis can accept 19-, 21-, or 23-tooth pinions; be sure the motor is mounted in the correct position for the pinion that you use. Below: the TL01 gearbox is rugged, but the tiny spur gear gets a real workout. Replacing the gearbox's bushings with bearings can help prolong its life and make your car faster to boot.

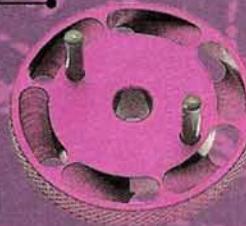


#### RS4 Nitro Aluminum Brake Kit



Lightweight aluminum, variable braking system. RRP 1575

#### RS4 Nitro Vented Flywheel



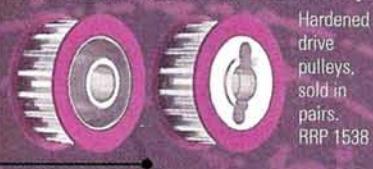
Aluminum vented flywheels move air over clutch bell, improving performance and cooling.  
 RRP 1570  
 RRP 1571 Pull Start

#### Stealth Sedan Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any HPI electric car or truck.  
 RRP 1860 thru RRP 1896.

#### RS4 Nitro Small Aluminum Drive Pulleys



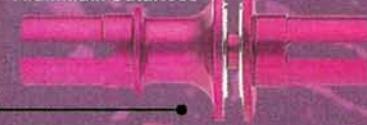
Hardened drive pulleys, sold in pairs.  
 RRP 1538

#### RS4 Top Shaft Pulley



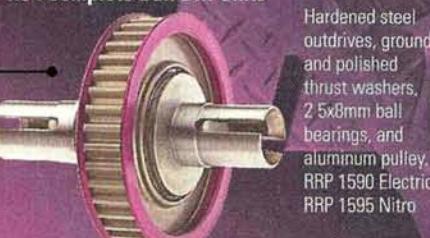
One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on. RRP 1527

#### RS4 / Pro / Pro2 / Nitro Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1585

#### RS4 Complete Ball Diff Units



Hardened steel outdrives, ground and polished thrust washers, 2.5x8mm ball bearings, and aluminum pulley.  
 RRP 1590 Electric  
 RRP 1595 Nitro

#### RS4 Diff Pulleys



Precision machined, hard anodized aluminum diff pulleys.  
 RRP 1539 nitro sedans  
 RRP 1528 electric sedans

[www.robinsonracing.com](http://www.robinsonracing.com)

#### RS4 Nitro Lightened Gear Adapter



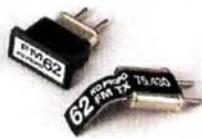
This lightened gear adapter includes a machined nylon spur that's tougher than the stock gear and will last longer.  
 RRP 1535

## CRYSTAL CONFUSION

My TC3 is equipped with a Trinity Green Machine 3 motor, a Futaba Magnum 2PC AM radio, receiver and servo, a DuraTrax Blast ESC and a Piranha 1500mAh battery pack. When I switch the car on, the front wheels swing to the left and stay there. From that point, I can't control the steering or throttle. The ESC's LED is illuminated a solid red, which I think indicates that the ESC is getting power, and yet I get no throttle or steering. I tried to physically set the wheels straight, but then they went back to the left. Could it be that I am using a 73 crystal in what is labeled 79? The guy at the shop said it would be fine. So, I turn to you. [email]

HUBERT SZACILOWSKI

Both the receiver (RX) and the transmitter (TX) crystals must be on the same channel, or the two components won't be able to communicate. Each crystal's channel and frequency should be indicated on the label; remove the crystals from your RX and TX and compare the numbers. Both must have the same frequency; for instance, channel 79's frequency is 75.770kHz, and channel 73's is 75.650kHz. So the two channels operate on different frequencies even though they are both legal 75MHz channels. If your crystals don't match, that's the cause of your problem. If your crystals are on the same frequency, I suspect one of them is damaged; they are delicate and must be treated with care. Pick up a new set of crystals when you're at the hobby shop. Oh, and if the clerk who helped you last time helps you again, double-check that you're getting Futaba AM 75MHz crystals; don't use a different brand in your Futaba system.



If the numbers on your crystals don't match, they won't be of much use to you. To keep them properly sorted in pairs (and protected when not in use), get a crystal case. This one is from Kawada; RPM makes a nice one, too.

## TOOLBOX

### Racetech motor-timing gauge

This simple and inexpensive tool is a must-have for electric racers. It makes a great stand for soldering capacitors or brush shunts, but its main mission is to precisely measure motor "timing" (that's motor-speak for the position of the brushes in the endbell relative to the magnets in the motor can). Using the gauge couldn't be simpler: just drop your motor in, align its mounting holes with the sighting window in the unit's base, then see where the timing mark on the endbell lines up with the gauge's molded degree marks that are set in 2.5 degree increments. You can set and adjust timing without having to remove the motor from the gauge—and at less than \$10, it's a bargain. RaceTech motor-timing gauge—part no. R3401; \$7.95.

BOLINK/RACETECH, 420 Hosea Rd., Lawrenceville, GA 30045; (770) 963-0252; [www.bolink.com](http://www.bolink.com). ■



### RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T bell combo will last and last. The extra-hardened clutch bell fits ALL Associated and MiP shoes. RRP 2365

[www.robinsonracing.com](http://www.robinsonracing.com)

### Hardened Steel Idler Gear



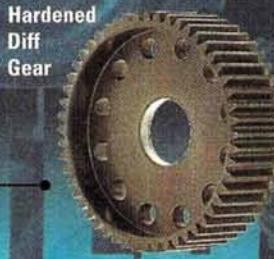
Cut from solid steel stock, this gear is lightened and hardened for super quiet precision and extra long life. Jammin' tranny grease is included. RRP 2213 RC10-GT, RRP 7505 Ultima GP-R

### Associated Titanium Stealth Top Shaft



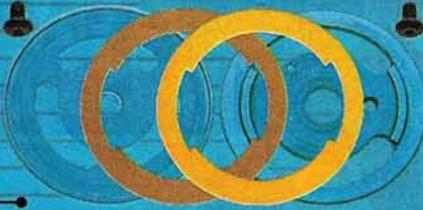
CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

### Hardened Diff Gear

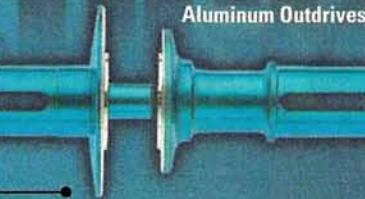


Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT RRP 7500 Ultima GP/EP-R

### Blue Lightened Slipper Kit



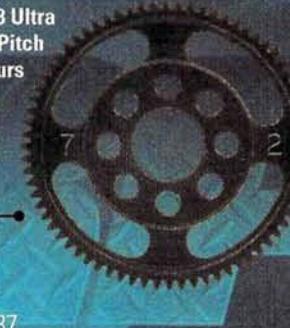
The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated, RRP 7515 Kyosho Ultima



40% lighter than stock ball diff outdrives. RRP 1475 TC3, RRP 1502 B3/T3



### TC3 Ultra 48 Pitch Spurs



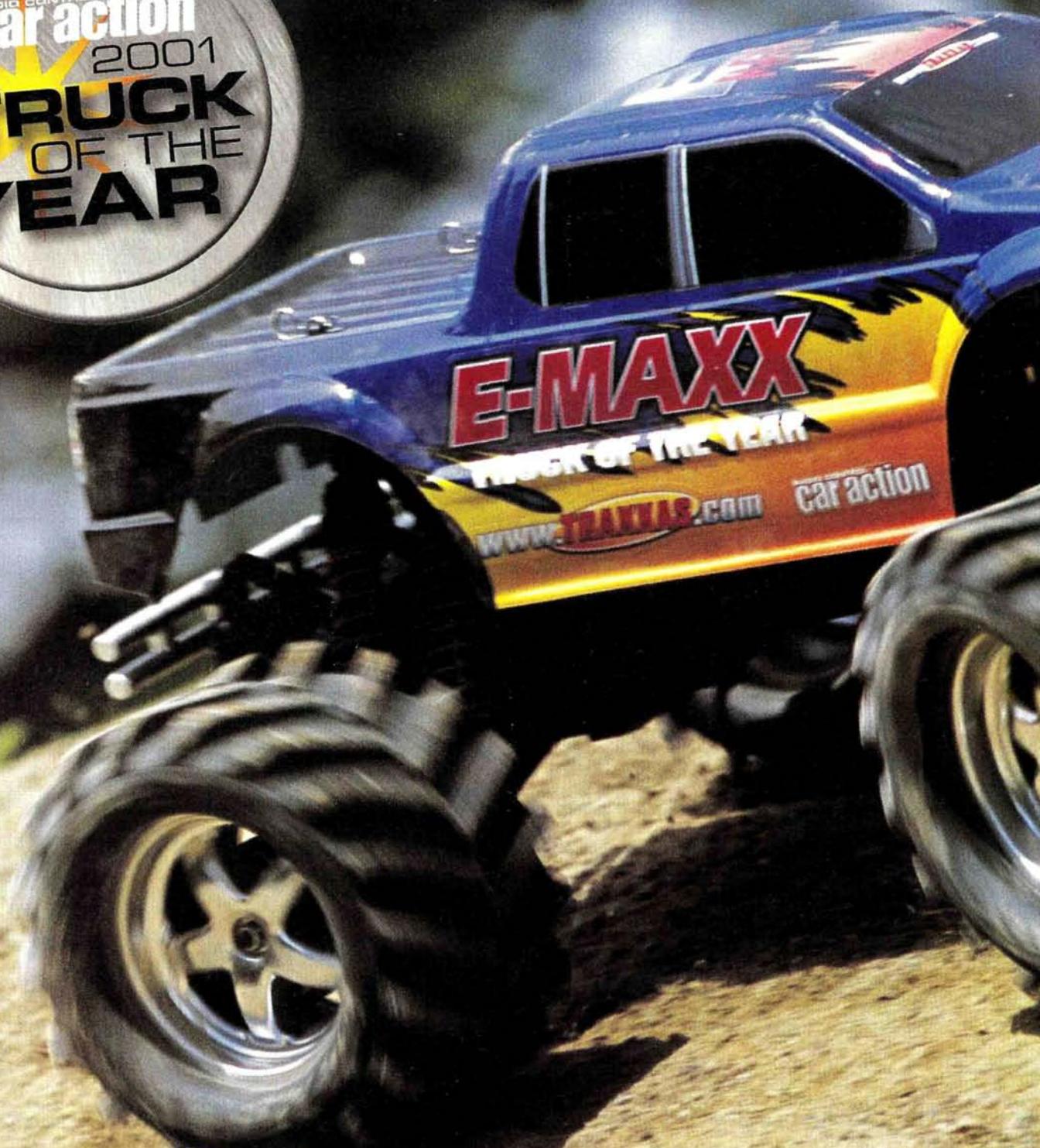
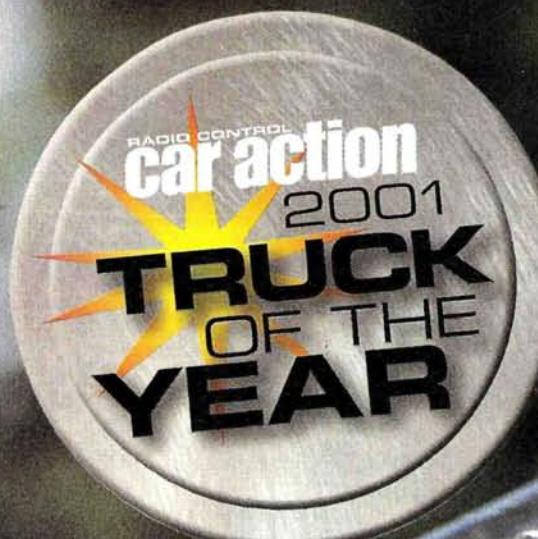
Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 RRP 1680.

## ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937



by the staff of *RC Car Action*



## Traxxas E-Maxx

**S**ometimes, our Truck of the Year is the most innovative, sometimes it's the best performer; and sometimes, it's the most influential. Rarely is it all three combined, but this year, the Truck of the Year truly is a triple threat. The Traxxas E-Maxx is unquestionably the best-performing electric monster truck ever—certainly the most technically innovative—and it is undeniably successful in the shops.





## WHY WE PICKED THE E-MAXX

■ **It's really ready to run.** The E-Maxx is more than a monster truck; it's an RTR, and we feel the E-Maxx is particularly successful in that role, thanks to electric power. As user-friendly as today's nitro RTRs are (including the EZ-Start-equipped T-Maxx), electric power is still the easiest way to get up and running, not just for the beginner but for anyone. The latest prefinished ProGraphix bodies supplied with Maxx kits are an added bonus; the truck looks as great as it works.

■ **It's innovative.** Remember that other truck that was sold with a 14.4V power system, dual 550 motors and a shift-on-the-fly 2-speed tranny? Neither do we. The E-Maxx has done it first, and more importantly, it

## E-MAXX MOMENTS

**October 2000.** Inside Scoop: "Traxxas E-Maxx Coming Soon! That isn't a typo; an electric version of the T-Maxx is on the way!"



**December 2000.** First Look: "The E-Maxx offers all the convenience of electric power without compromising the performance of the [T-Maxx]"



**March 2001.** Track Test: "There really is no comparison between the E-Maxx and the existing two-motor trucks .... The new definition of high-performance monster trucking can be summed up as 'Traxxas

*Maxx'...arguably the ultimate production RC monster truck."*



## INSIDE THE E-MAXX



**1 NOVAK-BUILT** 14.4V EVX reversing speed control with brake. This is a serious ESC; it includes thermal overload protection to prevent meltdowns, three drive profiles to suit your driving style and Smart Braking, which senses motor speed to determine when reverse can be safely engaged.

shocks. The most effective suspension you'll ever see on a monster truck owes much of its capability to the eight Big Bore shocks that do the hard work.

**3 ADJUSTABLE DOUBLE-ARM, PIVOT-BALL SUSPENSION** The pivot-ball setup allows camber to be adjusted easily and precisely, without camber links to bend or flex; instead, wide upper arms triangulate the suspension for greater rigidity.

**4 ADJUSTABLE TOE-IN** Turnbuckles equip both ends of the E-Maxx, making it easy to dial in as much (or as little) toe as required. No monster truck has ever been so adjustable.

**5 SHIFT-ON-THE-FLY 2-SPEED TRANSMISSION** Centrifugally shifted 2-speed trannies are common in nitro cars and have been offered for electric tourers, but the E-Maxx's you-shift-it gearbox is a first. Along with the powerful torque of the two Titan 550 motors, the tranny's low first gear is what makes the E-Maxx so adept at climbing and blasting wheelies.

**6 TITAN 550 MOTORS** The big five-fifties use long armatures for extra low-end grunt and feature internal "fans" to keep cool air circulating through the cans.

**7 HIGH-TORQUE STEERING SERVO** A monster truck just won't steer with a wimpy "standard" servo, so Traxxas specs a tough, 80-oz./in. servo.

**8 ACCEPTS STICK OR SIDE-BY-SIDE PACKS** Whether you're a racer with a case full of side-by-side packs or an enthusiast with a toolbox drawer full of sticks, the E-Maxx is ready for your batteries.



works. But the innovations don't stop at the power train; since the E-Maxx rides on the same suspension as the T-Maxx, it has the same gee-whiz technical stuff: pivot-ball suspension with upper and lower arms, eight shocks, adjustable rear toe, telescoping universal drive shafts and more. All of which makes the E-Maxx one heck of a performer, and that leads us to....

**■ Performance.** The E-Maxx blows away every electric monster truck we've ever driven. It's fast yet can claw up the steep stuff. It does wheelies on command. It has more suspension travel than a hill-climb bike. It even steers well enough to get around a racetrack. And if you really wanted to, you

could exploit all this performance potential at midnight in front of a nursing home, and no one would complain; remember, electric equals quiet.

**■ Factory support.** This isn't something we usually factor into a Car- or Truck-of-the-Year pick, but we made an exception here. When Traxxas replaced all the Vx12 ESCs released with the first E-Maxxes because they failed when exposed to water (which Traxxas didn't have to do, since *no* ESC should be exposed to water), we felt that showed a real



commitment to the customer (that's you), and that has to count for something. Especially when the replacement ESC is built by Novak and has more features than the unit it replaces. ■



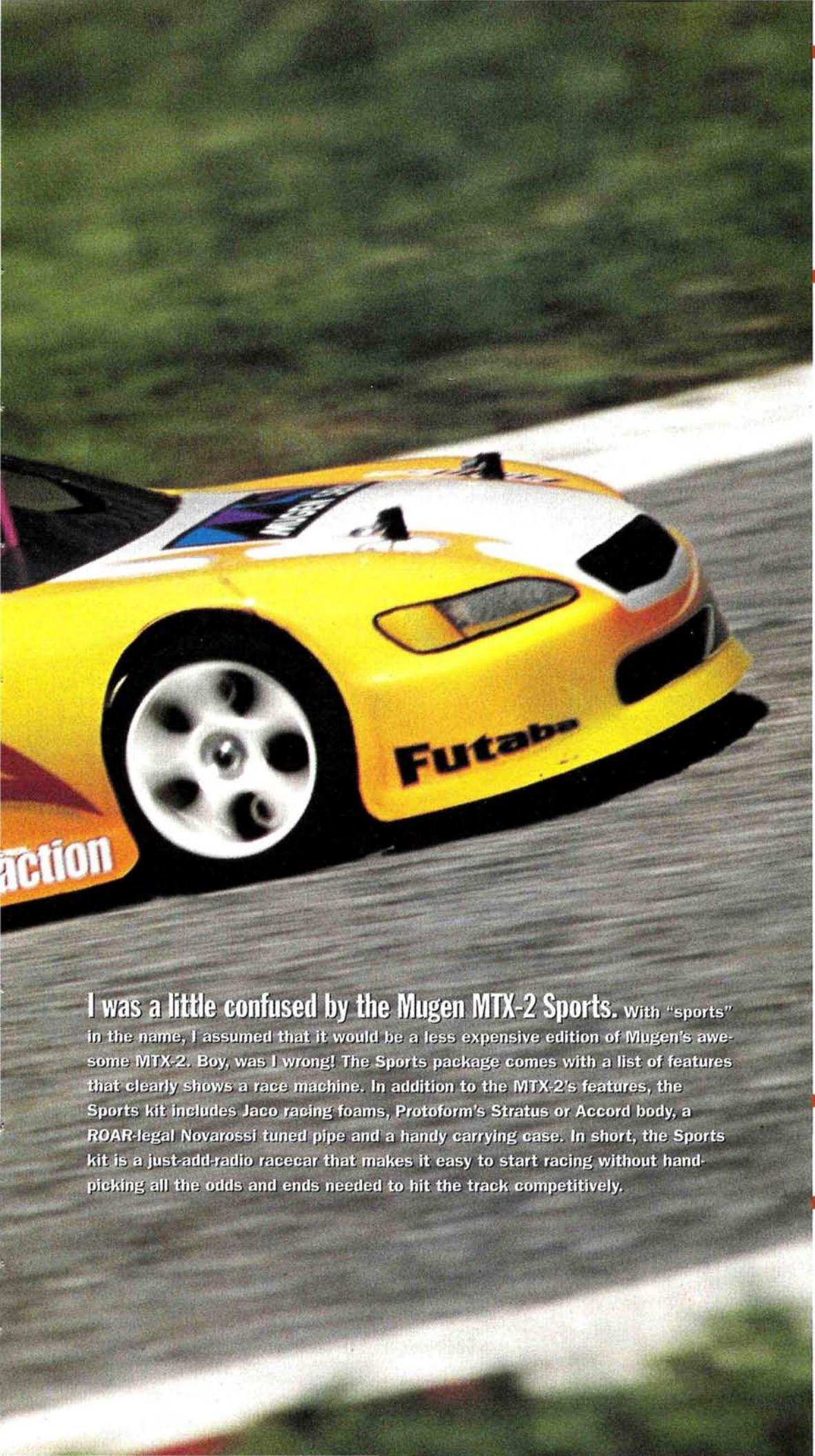
TRACK  
TEST

1/10-SCALE NITRO

# Mugen MTX 2-Sports

Sport? This thing is ready to race! by Derek Buono





## DATA CENTER

**VEHICLE TYPE** 1/10-scale 4WD on-road race touring car  
**BEST BUYER** Racers looking for a ready-for-the-track kit

**KIT RATINGS** (poor, satisfactory, good, very good, excellent)  
Instructions Satisfactory  
Parts fit and finish Excellent  
Durability Excellent  
Overall performance Excellent

## SPECIFICATIONS

**MANUFACTURER** Mugen Seiki  
**MODEL** MTX-2 Sports Package  
**DISTRIBUTED BY** Mugen Seiki USA  
**SCALE** 1/10  
**EST. STREET PRICE** \$469.99

### DIMENSIONS

Wheelbase 10.2 in. (260mm)  
Width 7.835 in. (199mm)

### WEIGHT

Total, as tested—62 oz. (1,775g)

### CHASSIS

Type Double deck  
Material Molded plastic/3mm T7075 aluminum

### DRIVE TRAIN

Type 3-belt  
Primary Clutch bell/spur  
Drive shafts Steel dogbones  
Differentials Sealed 4-gear bevel  
Final drive ratio 7.42:1 first gear;  
5.71:1 second gear  
Bearing type Metal shielded

### SUSPENSION (F/R)

Type Double A-arm/upper camber link and lower H-arm  
Damping Oil-filled, coil-over aluminum shocks with threaded bodies

### WHEELS

Type 2 in. Pro-Line Velocity

### TIRES

Type (F/R) Jaco purple/double purple foam

### ENGINE & ACCESSORIES

Engine Mugen MT12  
Carburetor 2-needle slide  
Exhaust Round-port manifold and Novarossi tuned pipe

### LIKES

- Ready to hit the track right out of the box.
- Killer engine.
- Threaded shock bodies.

### DISLIKES

- Rear camber link should be easier to adjust.
- Chassis has a sharp edge.

I was a little confused by the Mugen MTX-2 Sports. With "sports" in the name, I assumed that it would be a less expensive edition of Mugen's awesome MTX-2. Boy, was I wrong! The Sports package comes with a list of features that clearly shows a race machine. In addition to the MTX-2's features, the Sports kit includes Jaco racing foams, Protoform's Stratus or Accord body, a ROAR-legal Novarossi tuned pipe and a handy carrying case. In short, the Sports kit is a just-add-radio racecar that makes it easy to start racing without hand-picking all the odds and ends needed to hit the track competitively.

## TRACK TEST Mugen MTX-2 Sports



The rear pivot-ball suspension lets you get that perfect toe and track. A variety of camber-link locations offer a decent choice of tuning options.

## building & setup tips

The Mugen MTX-2 Sports package is actually quite easy to assemble. The directions could use some tweaking, but the entire car went together smoothly. A few steps require some extra attention.

• **Chassis prep.** It seems that every Mugen kit has a chassis with a very sharp edge. I recommend taking the time to remove the sharp edge with a file. It takes only a second, and it prevents you—or a corner marshal—from being cut.

• **Step 6.** Be careful not to cut the wrong swaybar mount off the arm.

• **Steps 14 and 18.** The front and rear pulleys can easily be confused with each other. Count the injection marks on the pulleys and you shouldn't have a problem.

• **Final adjustments.** You really should have some setup gauges to make sure that all the wheels point in the same direction and at the same angle. If you don't have setup gauges, a ruler and a camber gauge can be used to measure with acceptable accuracy. Take your time, and set it up right the first time.

### YOU'LL NEED

- 2-channel radio and receiver
- Steering servo
- Throttle servo
- 5-cell receiver pack
- Fuel
- Glow starter
- Fuel bottle
- Polycarbonate-compatible paint
- Thread-locking compound

### FACTORY OPTIONS

- Anti-roll bar link parts—part no. T0116, \$6.99
- Rear anti-roll bar—T0117, \$4.99
- Aluminum rear brace—T0120, \$19.99
- Aluminum wheel hubs—T0121, \$19.99
- Front/rear universal-joint set—T0211, \$39.99
- Front swaybar kit—T0123/1, \$39.99
- Aluminum rear brace—T0120, \$19.99

**Left:** the standard gas-car front pivot-ball suspension allows easy tuning and an almost infinite number of settings. The aluminum threaded shocks worked smoothly, although the springs were a little too stiff for the track I tested on. **Above:** since foams were legalized, they have been the popular tire choice for racers. The Jaco purple and double-purple combination is the most popular and is included in the box.

## KIT FEATURES

• **Chassis.** As expected, the 3mm T7075 provides a rigid backbone for mounting. All of the countersunk screws on the bottom sit slightly below the chassis and protect the heads from damage. The chassis edges are very sharp, and a few passes with a file are needed to smooth them out. Large openings in the chassis are designed to reduce weight and allow debris to exit the diff housings. Although this can actually allow more debris into the drive system, the advantage of allowing enough clearance for larger pebbles to fall out outweighs the disadvantages. The engine-mounting holes are countersunk and are slightly elongated to adjust gear mesh.

The molded-plastic upper deck is easily removed; this is a huge timesaver when performing maintenance and repairs. Molded openings for the servos fit any standard-size servo. A molded receiver battery compartment is designed to fit a 4- or 5-cell flat receiver pack; it must be either taped or strapped in. A plastic brace spans the gap between the upper deck and the rear bulkhead. It does a good job of preventing chassis flexing and keeps the gear mesh in place. A slightly larger brace supports the two rear bulkhead sides and doubles as a brake actuator support.

A bumper sandwich is used up front. Foam is captured between the lower and upper plastic bumpers. The sandwich style keeps things secure and reduces slop in the bumper. The foam supports the nose and protects the car from slight run-ins with barriers.

• **Drive train.** A lever-actuated 2-speed transmission spins the rear main shaft. A pulley attaches the rear belt to the rear bevel-gear differential. The diff uses metal gears and a plastic housing; it is a sealed unit containing the rear 5,000WT oil. The outer pulley runs a belt up the left side of the car to the front pulley shaft where the power is routed to the third and final belt. The front differential shares the same internal components as the rear differential, but it uses a different viscosity of oil: 30,000WT. For both diffs, steel outdrives rotate the steel dogbone axles. At the end of the stub axles, a 12mm plastic hub keys into the touring car standard rims. The entire driveline rides on a set of high-quality, metal-shielded bearings.

• **Suspension.** Highly adjustable pivot-ball suspension is found in both the front and rear ends of the car. A lower rear H-arm is connected to the pivot-ball rear hub, and this allows an almost infinite number of toe and track adjustments. The adjustable upper link allows camber tweaks, but unfortunately, it's just threaded rod and must be removed to be adjusted. The rear arms are attached to the rear bulkhead with a long hinge pin. If you

are looking for E-clips, Mugen went the logical route and used setscrews to secure the hinge pins in place. The molded rear shock tower is connected to the rear bulkheads and has five shock-mounting positions and two camber-link locations for tuning. Up front, the suspension is a double-A-arm setup with a pivot ball used to adjust camber and track. A hinge pin secures both upper and lower arms with a setscrew holding the pin in place. You can adjust the caster by sliding the upper arm fore and aft and adjusting the position of two caster shims. The front steering block is quite large and should be able to take some serious abuse. The front molded shock tower supports the upper hinge pin and is mounted between the front bulkhead halves. Four shock-mounting positions are available.

The shocks are aluminum with threaded bodies to allow accurate adjustments. Inside, the Teflon pistons are mounted on the shock shaft with a locknut. One-hole pistons are used up front; 2-hole pistons are used in the rear. The bladder-style shocks are easy to build and provide air-free damping. Silver springs are included for all four shocks, but are of two different lengths. Be careful that the longer set is in the rear of the car.

Steering is controlled by an inverted servo that is mounted on the upper deck. A large plastic servo-saver protects the servo from damage. A variety of inserts is included with the kit to accommodate all of today's popular servos. Adjustable turnbuckles attached to the front steering blocks allow easy adjustment of front toe.

• **Engine and accessories.** One thing is certain: with this kit, you won't need to upgrade the engine. Included is a top-of-the-line Mugen/Novarossi MT12 rear-exhaust engine. This little powerplant easily puts out over 1hp and offers enough rpm to make you dizzy. The MT12 has a large, machined heat-sink head and a 3-needle slide carb. With the race-legal Novarossi pipe, the two make mechanical music. The 3-shoe clutch has a threaded body to allow you to change pinions and alter gear ratios. The fuel tank is a spring-loaded design with a pressure fitting on the cap to allow a more consistent pressure.

### • Body, wheels and tires.

The Sports package is available with two of the most popular racing shells—Protoform's Dodge Stratus and Honda Accord. This one was the Accord

### Radio System

I installed my Futaba 3PJS radio. It has features gas racers need, such as endpoint adjustment, dual-rate FM modulation and a comfortable grip. The easy-to-read LCD screen lets you quickly view all the settings.

### Futaba S9101 and S9402 servos

These two servos provide the speed and torque that a high-performance race chassis demands. The S9101 has 43.1 oz-in. of torque and a .16 transit time. It performed throttle and brake inputs without any complaints. Pointing the wheels in the right direction was no problem with the S9402. Its 111 oz-in. of torque and a 0.09 transit time make this servo fast and powerful.

### Trinity 20%

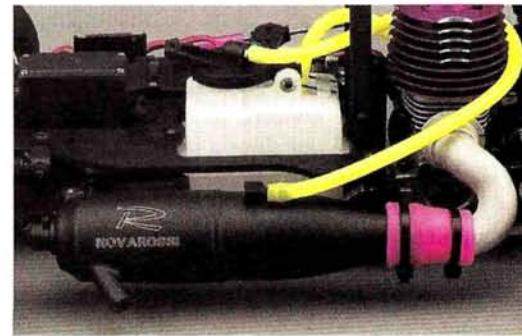
#### Team Blend fuel

RC Car Action readers recently chose this fuel as their favorite. I have been using Trinity fuel in all my engines, and it has been very consistent from gallon to gallon. Try the Team Blend for extra power when you hit the track.

### Mugen Powerpack

#### 900mAh NiMH receiver pack

The flat, 5-cell NiMH cells provided plenty of run time and power throughout the testing. In fact, they lasted so long that I almost forgot they needed to be recharged.



One of the drool factors for me was the MT12's rear-exhaust engine and Novarossi pipe, both of which are included in the box. Can you say "power"?

## THE COMPETITION\*

	Shocks	Chassis	Axles	Engine	Tires	Street price**	Reviewed
Kyosho V-One R	Threaded aluminum	3mm T7075	Dogbone	Not included	Rubber slicks	\$349	Nitro 9/01
Mugen MTX-2 Sports	Threaded aluminum	3mm T7075	Dogbone	Novarossi MT12	Jaco Foam	\$469	8/01
OFNA Nitro OB-4	Threaded aluminum	3mm 6061-T6	CVA	Not included	Rubber slicks	\$269	11/00
Serpent Impulse	Threaded plastic	3mm T7075	Dogbone	Nova Mega SX-12E	Rubber slicks	\$489	8/00
Yokomo GT-4W	Plastic	3mm T7075	Dogbone	Not included	Rubber slicks	\$319	12/00

\*Category is too large to list all competitive vehicles.

\*\*Approximate; price varies with dealer.

## TRACK TEST Mugen MTX-2 Sports

painted by Bill Zegers. Each body includes a full decal sheet. With foams legal on the racetrack, Mugen has decided to include a full set of Jaco foams (purple and double-purple). This combination has been the most popular on asphalt. The foams are mounted on a set of Pro-Line dish wheels.

### PERFORMANCE

I took the car on a journey to Tarmac Raceway in Poughkeepsie, NY. The track's unique paved roadcourse has extremely high traction and took some getting used to. Because it was built on the side of a hill, it had some intense elevation changes and off-camber turns. The stock springs were too stiff for the bumpy track, but the car still handled fairly well. The power of the MT12 engine was too much when combined with the standard 2-speed. I opted to lock out second gear for some faster lap times.

Steering was excellent but did suffer slightly at low speeds. This wasn't a problem when I got on



The permanent layout had a few track configurations to choose from. This is the only track I have seen with an elevation change.

the throttle; the car pulled as tightly as I wanted it to go. This track's intense elevation changes are something we don't usually get to race on. The MTX-2 Sports held its own. With the club's lap-counting system in place, I was only about 0.8 second from the fastest lap in the track configuration I opted to follow. That's not bad, considering that the stock setup was less than ideal for the track. Braking was sudden, to say the least; I immediately dialed out since a slight tap would lock all four wheels off, sending me straight into the grass. I have to mention the engine/pipe configuration again because it is one of the car's main selling points. The MT12 combined with the Novarossi pipe was actually too powerful for this track. You can't say that about every track, but this combo was killer. I recommend getting a few different spring and oil combinations, and it will be easy to dial this car into almost any track.

### THE VERDICT

Budding racers, pay attention: this car is track-ready out of the box. Not only do you get a solid-performing chassis, but you also get a purebred racing engine and pipe that will send the MTX rocketing down any straight. With a set of track-ready Jaco foam tires and your choice of the two most popular racing bodies Protoform offers, there's no denying that this car packs the most value for your hard-earned racing dollars. ■

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TOO MUCH  
TO ASK?

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# Kyosho Ultima RB Sports ReadySet

**A low-buck buggy with racing roots** by Jackie Rhodes



**The Ultima RB Type R debuted as a racing buggy** intended for the competition-oriented enthusiast. Now, Kyosho has taken the basic Ultima design and made it available as a ReadySet vehicle—which is Kyosho for “ready to run.” This buggy comes complete with a painted body, a battery, a charger and installed radio gear. Is this RTR a de-tuned racer, or is it a backyard machine? I drove one to find out.



## DATA CENTER

VEHICLE TYPE 2WD, electric off-road buggy

BEST BUYER Entry-level off-road RC enthusiasts

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit/finish Very good

Durability Good

Overall performance Very good

## SPECIFICATIONS

MANUFACTURER Kyosho

MODEL Ultima RB Sports ReadySet

DISTRIBUTOR Great Planes

SCALE  $\frac{1}{10}$

LIST PRICE \$219.99

## DIMENSIONS

Wheelbase 10.6 in. (270mm)

Width 9.8 in. (250mm)

## WEIGHT

Total, as tested 57.6 oz. (1,640g)

## CHASSIS

Type Molded semi-tub

Material Reinforced plastic

## DRIVE TRAIN

Type Gearbox

Primary Pinion/spur gear

Drive shafts Dogbones

Differential 3-gear

Slipper Yes

Bearing type Metal bushings

## SUSPENSION

Type Lower H-arm with fixed-length camber link

Damping Plastic oil-filled coil-over shocks with aluminum caps

## WHEELS

Type White plastic 6-spoke

## TIRES

Type (F/R) Kyosho rib/pin

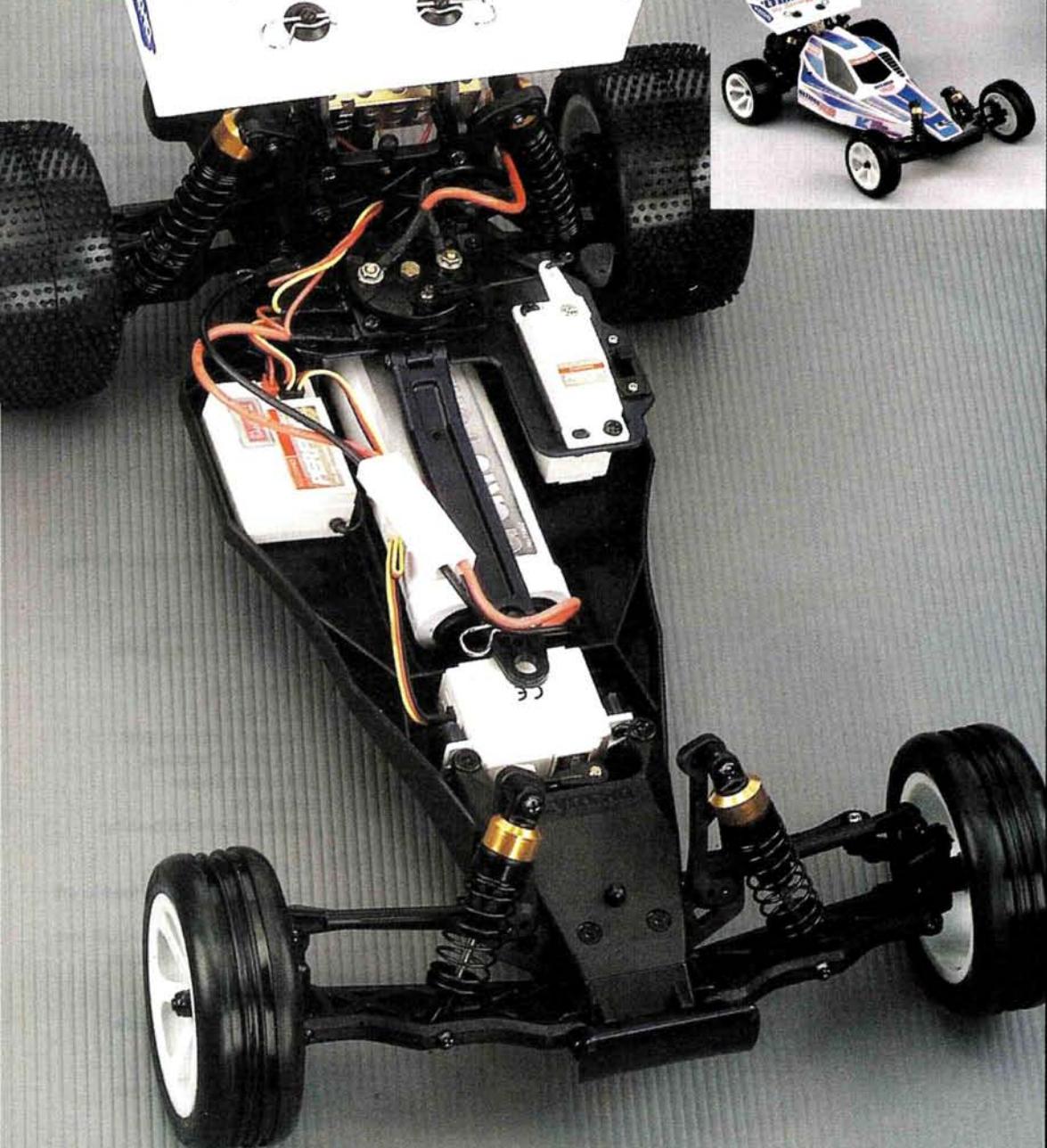
## LIKES

- Very complete RTR package.
- Thorough instructions.
- Good-looking body and decal package.

## DISLIKES

- Included charger requires 6 hours to fully charge battery.
- Tires are not factory-glued.

## TRACK TEST Kyosho Ultima EP Sports Ready Set



Above left: the included slipper clutch allows you to adjust for traction, and it also protects the internals of the 3-gear transmission from excessive force. The gearing is a good balance of speed, power and duration.

Above right: the buggy's fixed-length steering and camber links are durable, and they presented no problems during several days of testing. The bronze wheel bushings are visible on the axle shaft.

## building &amp; setup tips

The instructions are excellent, and they guide both newcomers and experienced folk through the final steps of assembly. All you have to do is trim the body, install the wing mounts and glue the tires to the wheels. But before you take that first run, here are a few areas to concentrate on.

**Body trimming and decals.** Since you don't have to worry about painting, take the extra time to carefully trim the body and neatly apply the decals. For compound curves, use a hair dryer to gently warm the decal before you apply it, so it will lie smoothly.

**Fastener check.** While your battery is charging, check each fastener to be sure that it is secure. Remove the grub screws on the outdrives and apply thread-lock to them before you re-install them.

**General maintenance.** Operating any RC vehicle means that you need to periodically check and clean the vehicle and make sure that all fasteners are still secure. If you run in a particularly dusty environment, you should use an electric-motor spray to keep your Kyosho motor running at peak performance.

**First run.** Gently apply the throttle and set your steering trim so that the buggy tracks straight. This is especially important if you'll be driving on a narrow track.

**Upgrades.** Many folks look for the first chance to hop up their vehicle. You can improve the buggy's efficiency by adding an electronic speed control and bearings.

## YOU'LL NEED

- 8 AA batteries
- Tire glue

## FACTORY OPTIONS

- Rear wheel bearings (5x10mm) part no.—DTXC1535 (2)
- Front wheel bearings (3/16x3/8)—DTXC1423 (2)
- Rear twin-cap Pro shocks—KYOC6103
- Front twin-cap Pro shocks—KYOC5780

**KIT FEATURES**

- Chassis.** The black molded chassis has a triangular tub shape for inherent strength and rib reinforcements increase overall rigidity. A molded upper nose plate further braces the front of the chassis, and it also serves as the front body mount. On the bottom of the chassis, flat-head screws provide a finished appearance, and they'll also prevent the chassis from snagging anything on the ground. The tub is basically the same chassis as the race-ready Type-R version, except for the addition of a mounting plate for a mechanical speed control.

- Drive train.** The Ultima is equipped with a 20-turn Kyosho motor that's operated by a mechanical speed control. The buggy has a conventional pinion/spur-gear arrangement, and the spur shaft is driven by a plate-type slipper clutch. The spur shaft spins the plastic primary top gear of the bushing-supported transmission; the bottom-mounted bevel-gear diff spins via a plastic idler gear. The outdrives are secured to the differential's hardened-steel output shaft with setscrews, and dogbones carry power out to the rear hubs. The three-gear system is rugged and is obviously built for durability instead of weight savings.

- Suspension/steering.** This buggy has the same H-arm design as the Type R Ultima, but these arms are more flexible than the Type R, and that adds to the durability. Instead of steel turnbuckles, fixed-length plastic rods with ball ends are screwed into place. The metal-cap shocks have plastic bodies that have been filled at the factory. Shock preload spacers are included to fine-tune the buggy's ride height. The stock shocks are filled from the top only (not from the top or bottom—like the race version). The steering linkage consists of a fixed-length toe link connected to the steering bellcrank; a servo-saver is built into the bellcrank's pivot, and a metal rod leads back to the servo arm.

- Body, wheels and tires.** A nice, prepainted body and wing are included, which means you can be out running the buggy even more quickly. High-quality, self-adhesive stickers are included to personalize the buggy. The tires are Kyosho ribbed-pattern in the front and pin-type in the rear; that's a good configuration for handling most off-road surfaces. Just remember to glue up your tires before you hit the dirt.

**PERFORMANCE**

The first thing I did was to take off my racer's hat and remember how I felt when I got my very first RC car. The newness, the excitement—it all came back to me. With a fresh battery pack onboard, I proceeded to run the buggy up and down the street. With a few adjustments to the included Perfex radio, I was zipping that buggy up and down the

asphalt just like a little kid. Yes; I know it's an off-road vehicle, but I was eager to run the Ultima, and who doesn't play on pavement?

Kyosho is following the trend toward hotter motors in RTRs by including a 20-turn unit as standard equipment—certainly quick enough to be fun. A few minutes into the run, the car just stopped. I could hear the motor turning, but the car was stationary. A brief look over revealed that one of the outdrives had worked itself loose. I fixed it with a simple twist of an Allen wrench, and I went back to wearing out the street. I had no other mishaps on subsequent runs.

The supplied battery is a 6-cell, 1400mAh stick pack. Remarkably, I got more than 10 minutes on the street with one charge. The included 19-tooth pinion worked just fine, and it proved a good compromise of power and duration.

I decided to take my buggy to Griffins Hobby in Bristol, VA, to see how Kyosho's latest buggy would handle the dirt and jumps. Griffins has a small indoor track that is very tight and kinda bumpy. I noticed a couple of things right away. The buggy really wanted to nose-dive off jumps. I added a preload spacer on the front, and the problem was fixed. The included tires were challenged by the track's very hard surface; rear-end traction was a problem, but I had plenty of steering. On a loose surface, the tires hooked up better. The buggy had a little trouble with some of the ruts, but all in all, it worked well. While I was testing at the hobby shop, the screw that holds the rear pivot block in place partially backed out. I'm sure that if I had taken the time to check all the screws, it would have been caught, but I was in too much of a hurry to run it. Although I didn't have quite as much run time on the tight track as I did on the street, the 1400mAh pack supplied more than 8 minutes of fun.

**THE VERDICT**

The Kyosho Ultima RB Sports buggy should do well. It's a simple design based on a racing platform, it's a relatively inexpensive RTR, and it's plenty of fun to drive. As with any RC vehicle, just be sure that everything is tight before you head out. I'm confident that anyone who is new to off-road or is looking for a vehicle that requires little effort to get up and running will enjoy the Ultima RB Sports edition. It's certainly a quick way to have fun. ■

**Kyosho Perfex 2-channel transmitter and receiver**

The Perfex radio offers a 3-LED battery meter, dual-rate steering, servo-reversing and trims for throttle and steering. The molded-plastic grip is comfortable to hold, and the radio has a well-balanced feel.

**Kyosho mechanical speed control**

The stock MSC has 3 speeds forward and a single-speed reverse mode. Although an electronic unit would have been preferable to this mechanical sweeper, the unit is certainly adequate for yard running.

**Kyosho Sports Power 1400 battery**

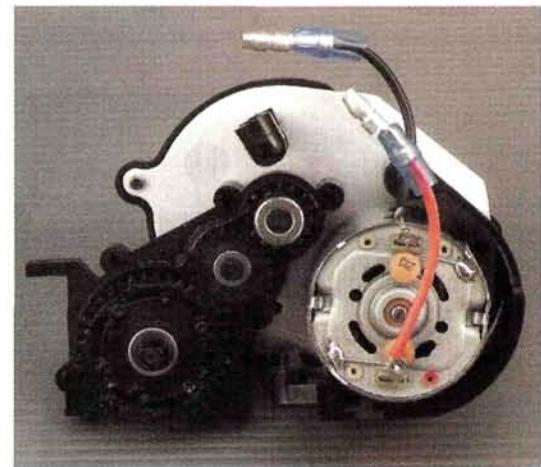
In a generation of higher-capacity batteries, it's easy to dismiss a 1400mAh pack. The included 6-cell pack, however, provided 8 to 10 minutes of reliable run time throughout testing.

**Kyosho AC charger**

A wall-outlet 110V charger is included with the Ultima buggy, though its 6-hour charge time is not for the impatient.

**Kyosho X-speed motor**

The Kyosho 20-turn sealed motor has good power for fun and is geared to provide good battery duration.



**The 3-gear transmission is supported by bushings, and it's very durable. The diff gear has hardened-steel yokes for outdrive support. The 20-turn motor has adequate power and is equipped with capacitors to minimize radio interference.**

**SOURCE GUIDE****KYOSHO**

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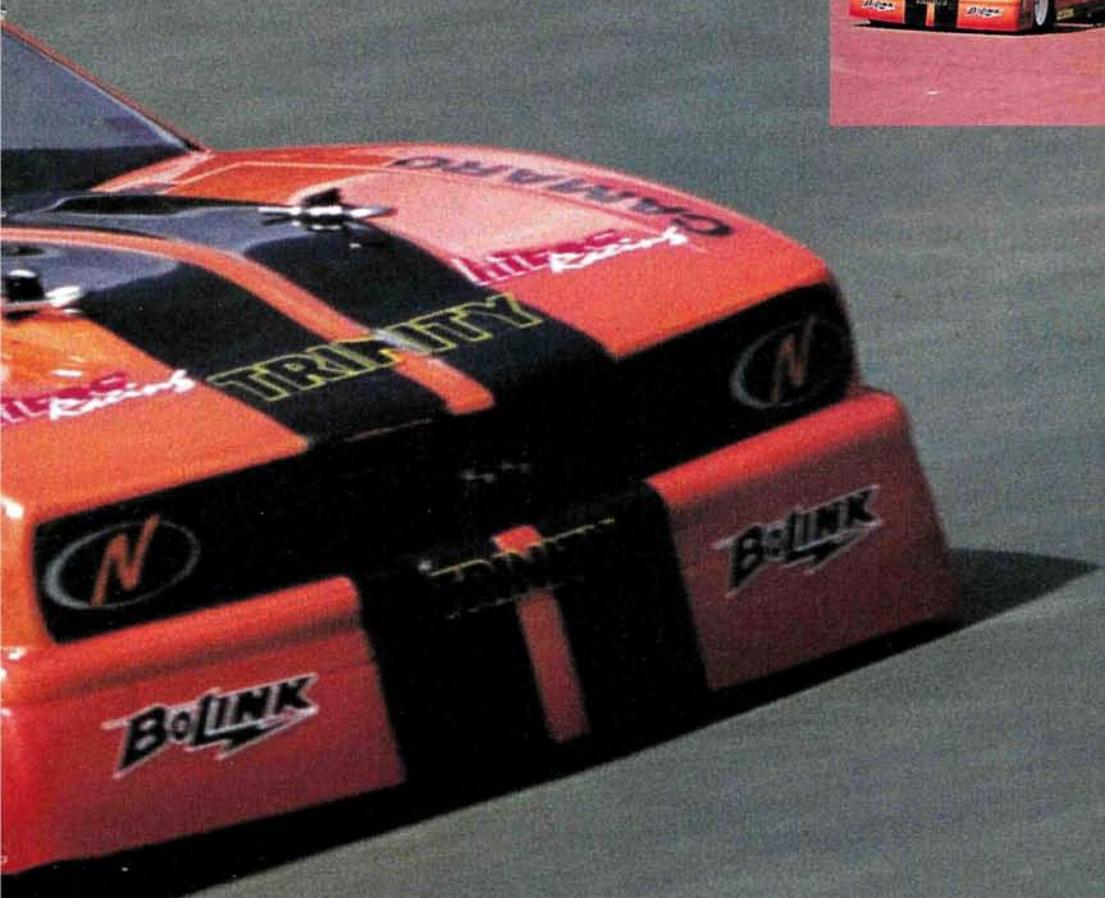
TRACK  
TEST  
1/10-SCALE ELECTRIC

# Bolink Touring Chassis

Pan-demonium by Peter Vieira



RADIO CONTROL  
**car action**



## DATA CENTER

VEHICLE TYPE  $\frac{1}{10}$ -scale electric pan car

**BEST BUYER** Anyone who likes his RC simple, fast and cheap

**KIT RATINGS** (poor, satisfactory, good, very good, excellent)

**Instructions** Poor

**Parts fit and finish** Good

**Durability** Satisfactory

**Overall performance** Very good (as rated for fun)

## SPECIFICATIONS

**MANUFACTURER** Bolink

**MODEL** 190mm Touring Chassis

**SCALE**  $\frac{1}{10}$

**STREET PRICE** \$75

### DIMENSIONS

Wheelbase 10.1 in. (257mm)

Width 7.3 in. (185mm)

### WEIGHT

Total, as tested 37.3 oz. (1,057g)

### CHASSIS

Type Pan

Material  $\frac{1}{16}$ -inch fiberglass

### DRIVE TRAIN

Type 2WD direct drive

Primary 81-tooth pinion/23-tooth spur gear

Axle Solid steel

Differential Ball-type

Bearing type Ollite bushings

### SUSPENSION

Type (F/R) Sliding kingpin/integral

T-bar

Damping (F/R) Friction/none

### WHEELS

Bolink slotted

### TIRES (F/R)

Bolink blue-compound foam/green foam

### LIKES

- Inexpensive.
- Fast with any motor.
- Quick to build; easy to maintain; fun to drive.

### DISLIKES

- Twitchy handling.
- Fragile; not for smash-and-crash driving.

## Keep it simple. We've all heard that before, right?

Apply that maxim to RC, and you'll get the vehicle tested here—Bolink's 190mm Touring Chassis kit. It's RC distilled to its purest form: direct drive, no real suspension—just the minimum number of parts required to give a home to a motor, battery, ESC and steering servo. If technological bells and whistles excite you most, look elsewhere. But if the thought of going very fast, very easily, with a very inexpensive car appeals to you, then definitely check out the Bolink Touring Chassis (BTC). You'll have a tough time beating its dollar-per-mph ratio, and it can wear any 190mm body to become whichever car you would like it to be.

## TRACK TEST Bolink Touring Chassis



Does it get any simpler? The BTC is a true pan car, with barely there suspension and a minimum of parts. What it lacks in interesting technical complexity it makes up for in seering straight-line performance. With a power-to-weight ratio that is tipped highly in favor of "power," the BTC moves out in a hurry!

Left: the spring-loaded front axles slide up and down on kingpins to provide a modicum of suspension, but the flexible chassis and front suspension plate do most of the bump absorption. Above right: the BTC is equipped with a simple but effective ball differential and solid steel axle.

**YOU'LL NEED**

- Transmitter and receiver
- Steering servo
- Servo-saver
- Electronic speed control
- 190mm body
- 6- or 7-cell stick-type battery
- Charger
- Lightweight grease (silicone lube preferred)

## building & setup tips

You won't need to set aside much time to assemble the BTC chassis; I blew mine together in about an hour, including electronics installation. First-time builders will have it less easy, as Bolink's instructions aren't the greatest. A sheet of black-and-white photos is matched to text typed in capital letters on both sides of another sheet, and a schematic drawing is also provided. It's enough information for anyone to get the kit built, but take the time to read and understand the instructions before you begin. Here are some tips to help.

**Front axle installation.** To press the axles into the steering blocks, use a vise or a pair of slip-joint pliers. Install the E-clip on the axle first, then squeeze the axle into the block.

**Bushing break-in.** I used Trinity Bushing Buster break-in fluid on the axle and front wheel bushings. This product works great on stock motor bushings, and the Sports bushings are made of the same material. I simply spun the rear axle in the bushings with a drill to distribute the Bushing Buster compound, and I used an old shock shaft as an axle to do the same with the front wheel bushings.

**Servo installation.** Bolink includes plastic servo mounts and drills the chassis for a standard-size servo, but the instructions call for the servo to be taped in place. Either method is fine, but you will discover that large servo-savers will rub the chassis. You can fix this by placing spacers under the servo or servo mounts (very hack), or you can simply use a more compact servo-saver (Kimbrough's 1/12-scale unit worked great for me).

**Aero stuff.** Sedan-body pan cars tend to trap a lot of air under the rear deck, and that makes the rear end very "light" and causes the chassis to spin out easily. You can increase rear grip by cutting out the body's rear panel to allow air to escape. I also suggest you trim the body's rear wing so it is as large as possible, and install the side dams (if included) to keep airflow on top of the wing instead of spilling off the ends.

• **Chassis.** The chassis is as simple as RC gets. It is little more than a flat,  $\frac{1}{16}$ -inch fiberglass sheet (or "pan," hence the term "pan car") with a few holes drilled in it for the front-end parts and motor mounts, plus a couple of slots for the zip-ties provided to hold a stick pack in place. The rear pod is an integral part of the main chassis and uses Bolink's familiar cast side plates to hold the motor and drive axle. A  $\frac{3}{32}$ -inch fiberglass top plate caps the rear pod. The thicker material stiffens the motor pod and strengthens the cantilevered rear body supports that are incorporated in it.

• **Drive train.** Direct drive is no surprise on a pan car, and the BTC features Bolink's time-tested steel-axle/ball-differential setup. An aluminum flange pinned to the axle is the base for the diff, which uses standard steel diff rings and  $\frac{3}{32}$ -inch balls. An 81-tooth spur gear and 23-tooth steel pinion gear are included. The diff hub is plastic with a pressed-in flange to hold the outside diff ring, and a large-diameter, one-piece thrust bearing and single Belleville washer are clamped by a plastic nut to adjust the differential. The plastic, left side hub is held to the axle by an  $\frac{1}{8}$ -inch setscrew. To prevent the hub from warping when the setscrew is tightened, an aluminum collar is installed around the base of the hub. The axle spins on Oilite bushings, and offset axle holders permit ride-height adjustment. As per the instructions, I installed the holders with the axle as low in the pod as possible for maximum ground clearance.

• **Suspension/steering.** Most of the BTC's suspension comes from chassis flexing, which can be pre-loaded by adjusting the drag-style "pull bar" on top of the chassis. You need only look at the pictures to understand how it works. A section of fuel tubing acts as a spring, and the amount of "sag" in the chassis plate can be adjusted by sliding the screw collar against the "spring" to preload it.

Up front, the molded-plastic steering blocks slide up and down their steel kingpins supported by tiny coil springs and damped by friction. Wire Z-bend linkages join the steering blocks to the servo-saver of your choice (not included).

• **Body/wheels/tires.** I tested the body-less chassis kit, but Bolink does offer the 190mm touring chassis with its RC Cruiser body (it's a Chrysler PT Cruiser look-alike). I chose the chassis-only kit because I really wanted to use Bolink's '68 Camaro shell. Bob Hastings threw the street-style paint for me (thanks, Bob).

To keep the car in touch with the pavement, Bolink Fasttrack foam tires are mounted and trued on slotted white wheels, with green-compound rubber in the rear and blues up front. The wide tires look very aggressive compared with the usual touring-car rubber and look totally street in the '68 Camaro's wheel wells.

## PERFORMANCE

The BTC is a parking-lot play car, so that's exactly where I went to test it. I was most interested in seeing how fast the car could go, so Greg Vogel and I set up the radar for some high-speed passes after I had installed an oval-style rear wing (not shown in the photos). The BTC hooked up well without requiring the application of traction compound to the rear tires, and the 7-cell pack/Chameleon motor setup easily pushed the BTC to 35mph with the stock gearing. The downforce over the rear wheels left the front end very "light," and the BTC pushed at top speed, but it steadily gained steering as I let off. With no steering-rate adjustment available on the Lynx Sport radio, the car also got twitchier as I scrubbed speed, but the BTC isn't really about slow-speed handling. In fact, the only real steering I did was a U-turn at the end of each speed run! Tearing up and down a parking lot or the driveway (the longer, the better), is what the BTC does best, and it would even make a great drag car; just lock the differential.

One thing you won't want to do with the BTC is drive it on rough pavement or crash it; there just isn't enough suspension to cushion the chassis, and the flexible fiberglass suspension parts won't tolerate a hard smack into a curb. One look at the BTC should be enough to realize that it's a smooth-pavement-only machine; but for the record, keep it away from the rough stuff. You and your car will both be a lot happier.

## THE VERDICT

If you're looking for racing performance, technical complexity, or smash-around durability, look elsewhere; the Bolink Touring Chassis (and its body-included cousin, the RC Cruiser) is not for you. But if it's speed you need, that's another story. The BTC is fast, simple and about as inexpensive as RC gets. I think the BTC is especially good as a second vehicle. For about the cost of a decent servo, you can buy this kit, swap over the electronics from another car and probably become the fastest guy on the block in the process. ■

## SOURCE GUIDE

**BOLINK R/C CARS INC.**  
420 Hosea Rd., Lawrenceville, GA 30045;  
(770) 963-0252; [www.bolink.com](http://www.bolink.com).

**DURATRAX**  
distributed Great Planes Model Distributors  
P.O. Box 9021, Champaign, IL 61826-9021;  
(217) 398-3630; [www.greatplanes.com](http://www.greatplanes.com).

**HITEC RCD INC.**  
12115 Paine St., Poway, CA 92064; (858) 748-6948;  
[www.hitecrcd.com](http://www.hitecrcd.com).

**KIMBROUGH PRODUCTS**  
1322 Bell Ave., Unit 1-C, Tustin, CA 92780;  
(714) 258-7425; [www.kimbrough-products.com](http://www.kimbrough-products.com)

**NOVAK ELECTRONICS INC.**  
18910 Teller Ave., Irvine, CA 92612; (949) 833-8873;  
[www.teamnovak.com](http://www.teamnovak.com).

**TRINITY PRODUCTS INC.**  
36 Meridian Rd., Edison, NJ 08820; (732) 635-1600;  
[www.teamtrinity.com](http://www.teamtrinity.com).

## Hitec Lynx Sport radio system

The ultra-basic Lynx Sport offers only the most essential features (trims and servo-reversing), but its real value is in its reliability and durability. This thing is a rock, and I've never had a glitch. The Lynx Sport is also dirt cheap, which is nice if purchasing a kit has tapped out your radio funds.

## Hitec HS303 steering servo

This is the servo included with the Lynx Sport radio. The Bolink chassis places very little demand on the steering servo, and the 40-oz./in.-torque (or so) HS303 provided more than enough steering power. I used a Kimbrough  $\frac{1}{12}$ -scale servo-saver to complete the installation.

## Novak Reactor reversing ESC

I put reversing ESCs in all the play cars I build, and the Reactor is a favorite. Here's why: it's reliable; it's efficient; it can handle mod motors; and if you want to race, you can disable reverse. It has the usual Novak features, too, such as cool-running Polar Drive circuitry, spur-gear-saving Smart Braking and One-Touch Set-up.

## DuraTrax Stock Metal Hydride 3000mAh stick pack

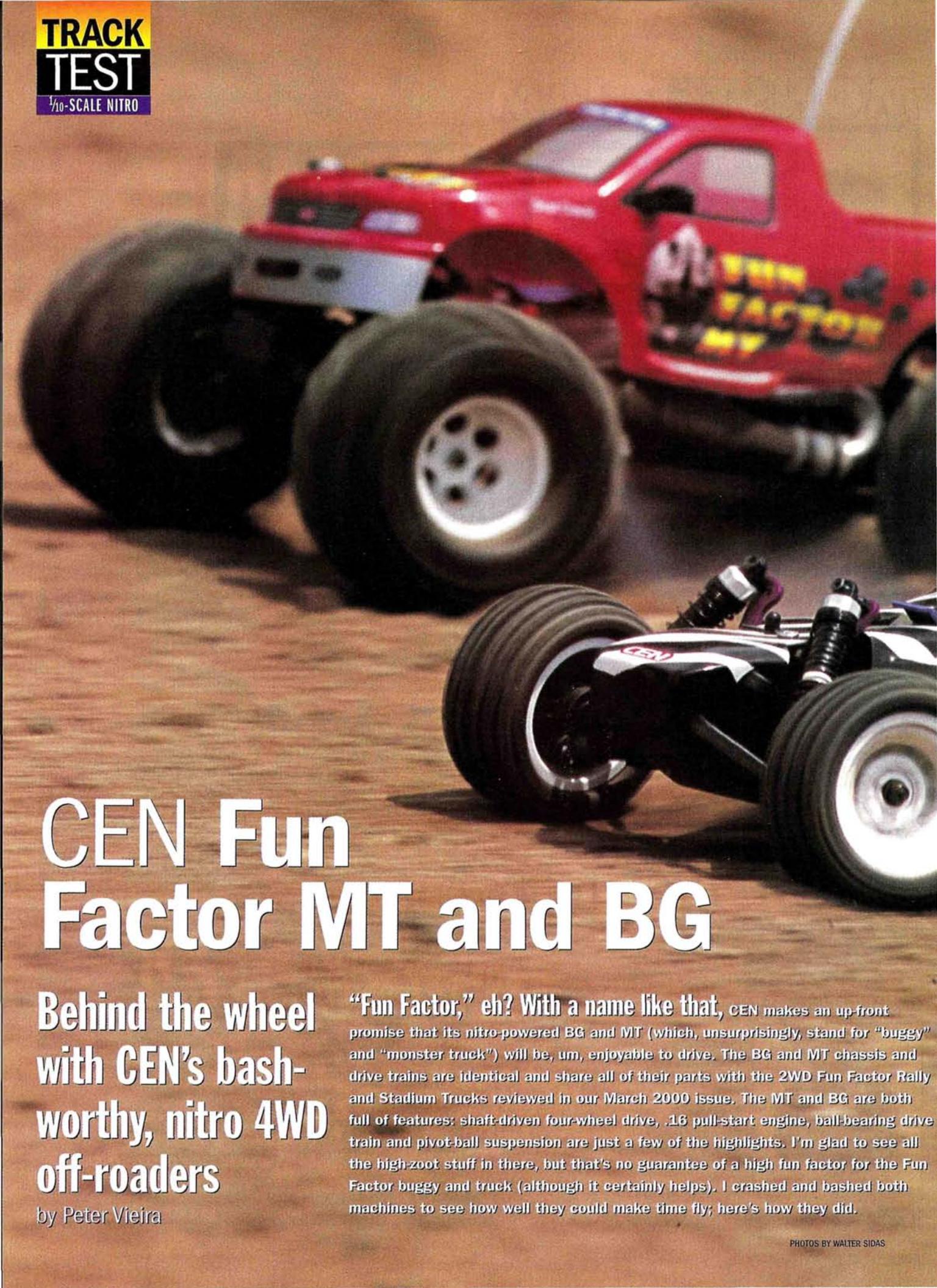
A 190mm body is wide enough to swallow a 7-cell pack, so I figured, why not? An extra cell always makes things interesting, especially in a lightweight car like the Bolink. I used DuraTrax's flat pack of Panasonic Stock Metal Hydride cells, which is assembled with high-quality silicone-insulated wire and a Tamiya connector.

## Trinity Chameleon motor

It doesn't take a low-wind mod to make a bare-bones pan car fly, so I chose a Trinity Chameleon for my Bolink project. Even on 6 cells, the Chameleon is plenty of motor for a car like this, but with 7 cells—look out.

# TRACK TEST

1/10-SCALE NITRO



# CEN Fun Factor MT and BG

**Behind the wheel with CEN's bash-worthy, nitro 4WD off-roaders**

by Peter Vieira

**"Fun Factor," eh? With a name like that, CEN makes an up-front promise that its nitro-powered BG and MT (which, unsurprisingly, stand for "buggy" and "monster truck") will be, um, enjoyable to drive. The BG and MT chassis and drive trains are identical and share all of their parts with the 2WD Fun Factor Rally and Stadium Trucks reviewed in our March 2000 issue. The MT and BG are both full of features: shaft-driven four-wheel drive, .16 pull-start engine, ball-bearing drive train and pivot-ball suspension are just a few of the highlights. I'm glad to see all the high-zoot stuff in there, but that's no guarantee of a high fun factor for the Fun Factor buggy and truck (although it certainly helps). I crashed and bashed both machines to see how well they could make time fly; here's how they did.**



## DATA CENTER

MANUFACTURER CEN

MODELS Fun Factor BG,  
Fun Factor MT

VEHICLE TYPE  $\frac{1}{10}$ -scale, RTR,  
4WD, nitro-powered buggy and  
monster truck

BEST BUYER Any hobbyist interested in a solid nitro play vehicle (but who doesn't care that the radio isn't of as high a quality as the vehicle)

### KIT RATINGS

(poor, satisfactory,

good, very good, excellent)

Instructions Satisfactory

Parts fit/finish Very good

Durability Very good

Overall performance Very good

## SPECIFICATIONS

SCALE  $\frac{1}{10}$

STREET PRICES \$284.99 (BG);  
\$299.99 (MT)

### DIMENSIONS

Wheelbase 10.75 in. (274mm)

Width 9.5 in. (243mm) BG;

13.5 in. (340mm) MT

### WEIGHT

Total, as tested 66.59 oz. (1,888g)  
BG: 67.4 oz. (1,911g) MT

### CHASSIS

Type 2mm stamped plate

Material Purple-anodized aluminum

### DRIVE TRAIN

Type 4WD shaft, enclosed gearbox

Primary MT/BG 13/16 clutch bell,

47 spur gear

Drive shafts (F/R) Universal

joint/dogbone

Differentials Bevel gear

Bearing type Sealed ball bearings in  
drive train; Oiilite bushings in hubs

### SUSPENSION

Type Upper and lower A-arm,  
pivot ball

Shocks Plastic-body, fluid-damped,  
coil-over

### WHEELS

Type One-piece plastic 2.2-in.

### TIRES

Type Chevron-tread, monster-truck  
type (MT); block-tread, low-profile  
(BG)

## LIKES

- Full pivot-ball suspension is easily adjusted.
- NT-16 engines provide plenty of rip for sport-class machines.
- Bodies are painted, trimmed and mounted right from the box.

## DISLIKES

- Safari-theme graphics weren't for me.
- Body trimming is rough.
- The included radio works OK but feels cheap.

## TRACK TEST CEN Fun Factor MT and BG



The dust-proof radio box has plenty of room for an alkaline receiver pack and the included CEN receiver.

**Pivot-ball suspension, universal front drive shafts, aluminum-capped plastic-body oil shocks; the Fun Factor cars pack in a lot of features.**

**YOU'LL NEED** ■ Fuel ■ Glow-starter ■ Tire glue ■ 12 AA batteries

### FACTORY OPTIONS:

- Universal-joint axles (pair)—part no. FFS003
- E-clip-type hinge pins—FFS007 (4x40mm); FFS008 (4x47mm)
- Aluminum spur-gear mount—FFS022
- Aluminum brake hub—FFS009
- Aluminum bellcrank tie bar—FFS019
- Aluminum tuned pipe—G70318

\*List does not include all available option parts.



The MT's body is painted and decals have been applied for you by CEN; and nothing says "fun" like a rhinoceros! OK, maybe not.

The Fun Factor 4WD chassis is compactly arranged and easy to work on. Note the deeply channelled lower chassis plate; it's tough.

## building & setup tips

CEN does a good job of assembling the Fun Factor BG and MT, but there are a few steps the owner needs to do before hitting the dirt. Unfortunately, the included manuals for the vehicles and Mirage transmitter aren't useful for much more than parts identification, but the finishing steps for the BG and MT are simple enough. Don't forget to take care of these ....

**Glue the tires.** The BG's tires must be glued; they will easily roll off the rims otherwise. The MT can be run with unglued tires, as the side-walls simply flex instead of peeling themselves off in the turns, but it is best to glue them. Clean the rim- and tire-mounting areas with motor spray, nitro wash, or rubbing alcohol before gluing, and use a top-quality tire glue to mount the tires.

**Apply thread-lock.** As I disassembled the FFs for detail photos, I was pleased to discover that CEN applies strong thread-locking compound to the engine-mounting screws as well as to the screws that thread into the chassis standoffs. But after a few runs, I discovered some other screws were missing (or on their way out). The screws that pass through the upper deck into the steering bellcranks backed out, and the fuel-tank mounting screws vibrated their way to freedom after one run. Apply thread-lock to these screws before they're MIA!

**Dial in the transmitter.** If your FF vehicle doesn't seem to have much steering throw, check the steering-rate knob, and crank it to the full clockwise position. Both the FFs I tested had most of their steering dialed out. While you fiddle with the radio, check the steering and throttle trims before you fire up the engine.

**Check the shock-seal caps.** Knurled aluminum caps hold the shocks' O-ring seals in place—at least, they do if they're tight. A couple of the MT's shocks dumped their goo when the seal caps buzzed off because they weren't fully tightened. This could have been avoided if I had just given them a twist before I ran the truck.

**Increase the shock damping.** If you're a typical RTR buyer, you probably aren't in a hurry to crack open the shocks for a fluid change, but heavier shock fluid really will help the FFs' handling. You could also try installing one of the included, optional pistons, but since that requires you to dump out the shock fluid anyway, you may as well just use thicker shock goo to achieve the same result. Try 40WT fluid.



**Neaten up the bodies.** It's nice that CEN trims the FF bodies for you, but it's not the most precise trim job you'll find. To make your FF look its best, grab a pair of body scissors and clean up the cut lines.

## KIT FEATURES

• **Chassis.** The Fun Factor chassis is constructed of nitro RC's most basic element: 2mm aluminum plate. The stuff is purple-anodized and stamped with deeply radiused sides that almost qualify the chassis as a tub and make a stiff platform for the rest of the Fun Factor's (FF) components. The chassis' nose is stamped separately to provide a generous 30 degrees of kick-up and is attached via screws that thread into steel inserts in the nose plate. A broad upper deck secures the steering servo and suspends the fuel tank, and a short rear brace supports the spur-gear bearing block and rear brake assembly.



The Fun Factor MT's wider arms encircle the shocks for increased strength and also protect them from impact damage.

Most of the chassis' right side is taken up by a very roomy and well-sealed radio box. A body clip keeps it closed, and the lid accepts the on/off switch and antenna. By unplugging the steering and throttle servos and removing the radio box's mounting screws, the radio system can be removed intact.

• **Drive train.** CEN followed the standard nitro-tech playbook pretty closely and equipped the FF with front and rear bevel-gear differentials, a plastic spur gear, a fiberglass brake disc, cam-actuated steel brake caliper, dogbone-type rear axles and 12mm drive

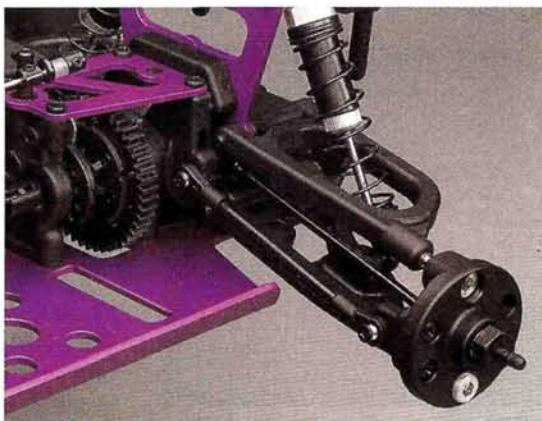
hexes. Unexpected touches include universal front drive axles (copied from MIP's CVD design) and sealed bearings for all the main drive train's rotating parts.

A two-shoe clutch and 47-tooth spur gear equip both the MT and BG, and CEN wisely specs two different clutch bells to suit each car. The MT gets a 13-tooth clutch bell to compensate for its tall tires, and the BG sports a 16-tooth unit to better spin its smaller treads.

• **Suspension and steering.** Like a little T-Maxx, the FFs' suspensions eliminate lower H-arms, upper camber links and hinge-pin-held hub carriers in favor of a full pivot-ball setup with upper and lower A-arms. The wide-



I found the trimming on the BG body to be a bit rough, but good enough. Body-on fuel-tank access is a bonus.



The unique round hub carriers are on both ends of the Fun Factor cars; in the rear, a threaded rod is used as a toe-in link. Just ahead of the spur gear is the single-disk brake. The unit shown here is plastic, but a stronger, fiberglass unit is now standard.

track MT's arms are long enough for the upper units to wrap around the shocks, simultaneously stiffening the arms and protecting the shocks from potentially shaft-bending impacts. The narrower BG's arms aren't long enough to perform the same feat, but they are thick and appear strong nonetheless.

Both FF machines cleverly use identical hub carriers for the front and rear suspensions. The disc-shaped carriers hold on to the suspension's pivot balls with plastic-padded aluminum retainers and operate smoothly. For steering duty, bellcrank arms are screwed to the front carriers to mate with the steering links. To keep the rear carriers from flopping around on the suspension arms, plastic bosses replace the bellcrank arms, and steel rods are

## CEN Mirage III 27MHz transmitter and receiver

In addition to the usual trims and servo-reversing, the Mirage radio set has the bonus feature of adjustable steering travel (better known as dual-rate steering). The radio works well with no glitches and plenty of range, but in terms of feel, it's a flop. The steering-wheel travel is lumpy, and the Mirage's plastic body projects a sense of cheapness that belies its functional competency. It's good enough to get you started in RC, but once you try a name-brand radio set, the Mirage III will stay on the shelf.

## CEN 82103 steering and throttle servos

I had no problems with the CEN servos, but the MT's big chevron tires do ask for more steering torque than the 30 to 40 oz.-in "standard"-type servos can provide. Thanks to the narrower buggy track and smaller, lighter tires, the BG worked perfectly well with the same steering servo.

## ADDITIONAL TEST GEAR

(not included)

## Dynamite Blue Thunder 20-percent-nitro fuel

The first bottle of fuel I ever bought was Blue Thunder, and for a long time, it was the only brand I used; my local shop carried nothing else! Not that I was anxious for other options, as the blue stuff never let me down. It still hasn't; I had the usual good results with Blue Thunder in the CEN NT-16 engines. For backyard banging around, Blue Thunder's 10- or 15-percent-nitro blends are probably better choices; faster is always more fun, though, so I went for 20 percent.

## THE COMPETITION

Type	Chassis	Bearings	Engine	Pipe	RTR	Radio	Street price	Reviewed
CEN Fun Factor MT 4WD	Monster truck	2mm alum.	Ball/bush	CEN NT-16	Plastic, tuned	Yes	CEN Mirage III	\$300
CEN Fun Factor BG 4WD	Buggy	2mm alum.	Ball/bush	CEN NT-16	Plastic, tuned	Yes	CEN Mirage III	285
HPI Nitro MT	Stadium truck	2mm alum.	Ball	HPI Nitro Star 15FE	Plastic, tuned	Yes	HPI TX2	360
Kyosho TR-15	Buggy	2mm alum.	Bushings	Kyosho GS15-R	Metal, tuned	No	Not included	270
OFNA Pirate 10 T	Stadium truck	2mm alum.	Ball	Force 12	Metal, tuned	Yes	Airtronics Rival	370

All models include pull-start engines. Prices shown for non-RTR models are for kit only. All prices are approximate and vary with dealer.

## TRACK TEST CEN Fun Factor MT and BG

installed as toe-in links. Since the rods are threaded, toe-in can be adjusted in any amount.

Plastic-body, fluid-damped shocks suspend the FF chassis and seem to operate as well as other brands' plastic shocks, but aluminum upper and lower sealed caps make the CEN units a bit more stylish than the black-on-black variety. Spare pistons are included, and the shocks are filled with fluid at the factory. As built, they're a bit underdamped, but the spring rates feel about right.

A pair of steering bellcranks with a spring-loaded, cam-type servo-saver is joined to the upside-down steering servo via a threaded rod and ball joints, so no Z-bend linkages are used. The servo-saver's tension is adjustable—albeit with some difficulty, since it's buried under the upper deck—and is factory-set on the soft side of the adjustment range—all the better for the type of abusive play that machines like the FFs are subjected to.

**• Engine and accessories.** CEN's own NT-16 engine is standard issue for both FFs, and it's a pretty good little mill. In addition to the always welcome extra displacement (.16 instead of the usual .12), the NT uses a 2-needle carburetor for full mixture adjustability. Unfortunately, the low-end needle is tough to reach because the radio box obstructs it, but the slotted high-end needle can be easily set with a screwdriver, even with the body on. A pull-starter is no surprise, and the machined heat-sink head should cool effectively. A foam-element air cleaner is also included.

The FF's unconventional engine placement requires a 180-degree header, and the CEN unit is a little rough-looking but perfectly functional. A plastic, tuned-style pipe with dual tips and a recessed pressure fitting finishes off the exhaust system.

**• Body, wheels and tires.** Both FF machines have what CEN calls "P&D" bodies, which stands for "painted and decorated." The bodies are also trimmed (albeit crudely) and mounted at the factory. The MT gets a conservative red paint scheme with a rhinoceros motif, and the BG sports a zebra-stripe shell that simultaneously evokes television artifact "Daktari," Fruit Stripe gum and anything Cher wore in the '70s.

Monster-style chevron tires grace the MT's 2.2-inch rims, and the BG gets block-tread rubber on its narrower 2.2-inch hoops. The rubber is stiff enough to forego foam inserts—a good thing, since none are included. The white wheels have a tasteful hole-pattern design that is stylish and allows the included hex wrenches to pass through the wheels to the suspension pivot balls for easy camber adjustments.

### PERFORMANCE

My first runs with the BG and MT were supposed to be simple straight-line passes for top-speed radar testing, but they turned into all-afternoon street-punishment sessions. The CEN NT-16s started easily and ran reliably after a brief break-in and proper carburetor setting. After clicking off a 36mph best run for the MT and 31mph for the BG (that's the difference smaller tires make), fellow editor Derek Buono



**CEN's NT-16 engine performed well in both vehicles. It's easy to spot the carb's low-end needle with the engine out of the car, but once installed, access is poor.**

helped me put a hurt on the CEN machines. As the top-speed numbers suggest, there was plenty of play-around power on tap, thanks no doubt to the .16 displacement. The little BG wasn't as fast as the MT, but it took off much more quickly and had plenty of torque to light up the tires. Unless we kept both cars pinned until their engines revved out and the MT's speed edge could materialize, we'd swear the BG was faster because it's so quick off the line. Though it isn't slow, the MT just can't spin up its big tires as quickly.

Unsurprisingly, the BG also outhandles the MT, but neither could be described as great handlers. Underdamped shocks create a lot of chassis sway, and hard turns cause them to lift the inside front wheel (but to their credit, neither FF flipped). It isn't the fast way around a vacant lot, but these aren't racing machines, and their hyperactive suspensions make the FFs fun to watch. Unfortunately, the light damping also makes it easy to bottom out the chassis, and a few tanks' worth of curb-hopping gave the FFs a lot of hard knocks. Nothing broke, but I always wince when I hear the metal-to-pavement slap of a chassis bottoming out. After a thorough pounding, the only damage (outside of scuffs and scrapes) was a bent toe-link on the MT after a string of high-speed cartwheels. The bent link added about 10 degrees of toe-in, which meant the car had to be driven just about sideways to track straight, but the problem was easily (and literally) straightened out in 10 seconds with a pair of pliers.

So nothing broke, but how about the brakes? The FF's single-disc setup effectively hauled the cars down to a stop. The brake got a greater workout from the MT's taller tires, but it could still lock the wheels after first scrubbing a little speed.

### THE VERDICT

There's a lot to like about the CEN Fun Factor 4WDs, but the Mirage III transmitter casts a pall of cheapness that the FF chassis and NT-16 engines don't deserve. Likewise, the dubious body graphics (and for that matter, the less-than-awesome packaging) may divert hobbyists from what are some pretty cool off-road vehicles. As a reader of *RC Car Action*, you're smarter than that, and just as a flashy body and slick marketing wouldn't fool you into buying a lame kit, I don't think you'll let the Fun Factors' goofy graphics and sub-par transmitter blind you to the merits of the chassis. For a bargain price, you get a strong and reliable engine with tuned-type exhaust, a full-time shaft-driven 4WD system with sealed ball bearings and full pivot-ball suspension (found on much more expensive vehicles such as the Traxxas T-Maxx and the latest  $\frac{1}{8}$ -scale competition buggies). These highs easily outweigh the lows. The too-soft damping is fixed with a \$3 bottle of shock fluid; if you don't like the bodies, they'll be trashed soon enough; and given the FFs' low cost, the Mirage III radio is practically "free," so you won't feel bad replacing it—or, you could just use it and keep 75 bucks in your pocket because it works just fine.

Of the two Fun Factors, I think the MT is the star; the monster-truck look is always a draw, and the MT's higher top speed and wider stance make it a more attractive off-road play package. I like it so much, in fact, that my next project will be based on the Fun Factor. With a fresh body, revamped radio, dialed-in damping, a few style mods and a new name—I'm thinking "Fear Factor"—we'll see what the CEN 4WD truck platform can really do. ■

### SOURCE GUIDE

CEN/GENKA TRADING CORP.

1800 East Miraloma Ave., Ste. F, Placentia, CA 92870; (714) 792-1923.

DYNAMITE

4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511;  
[www.horizonhobby.com](http://www.horizonhobby.com).



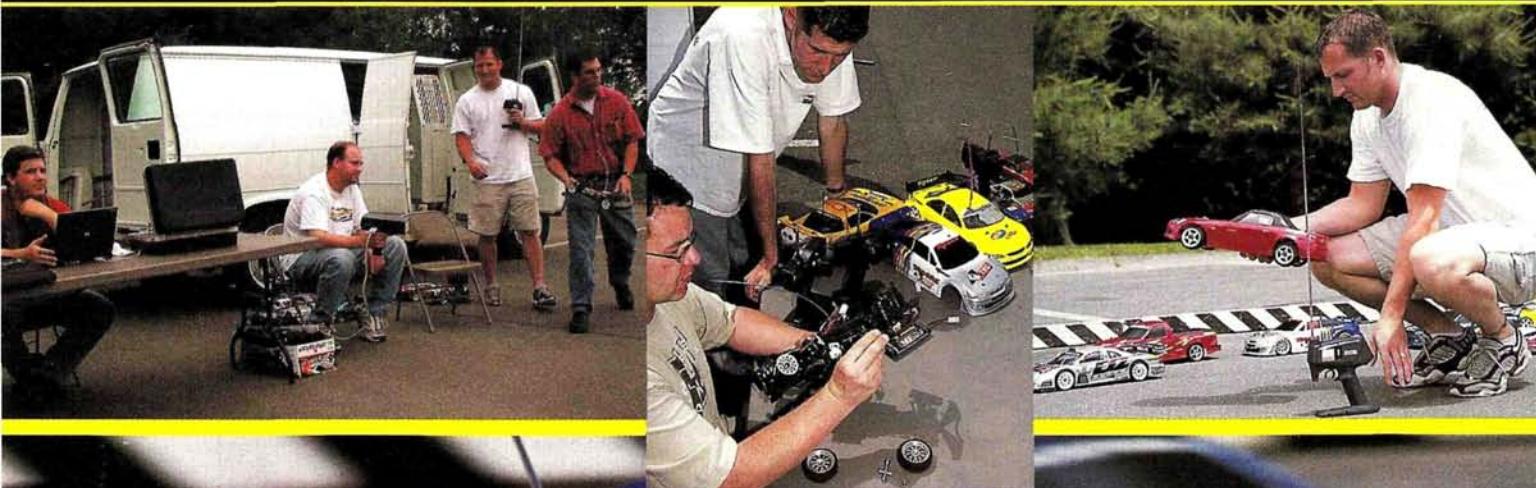
BY THE STAFF OF **RC CAR ACTION**

PHOTOS BY WALTER SIDAS



# Ready to Run 4WD ELECTRIC TOUR

Wheel to wheel with Associated, CEN, Kyosho





## BATTERIES— AND OTHER STUFF— NOT INCLUDED

We used the following items and their approximate street prices (which vary with dealer) to calculate total prices for the various vehicles. For example, all the Tamiya XB kits require a charger, a 6-cell stick pack and 8, AA batteries, so we added the cost of these to the cost of the XB vehicles. But since the XB's are factory painted and the tires are glued for you, we didn't add the cost of paint or glue. Get it?

Peak charger \$40

Stick pack \$25

Two cans of paint \$4 each

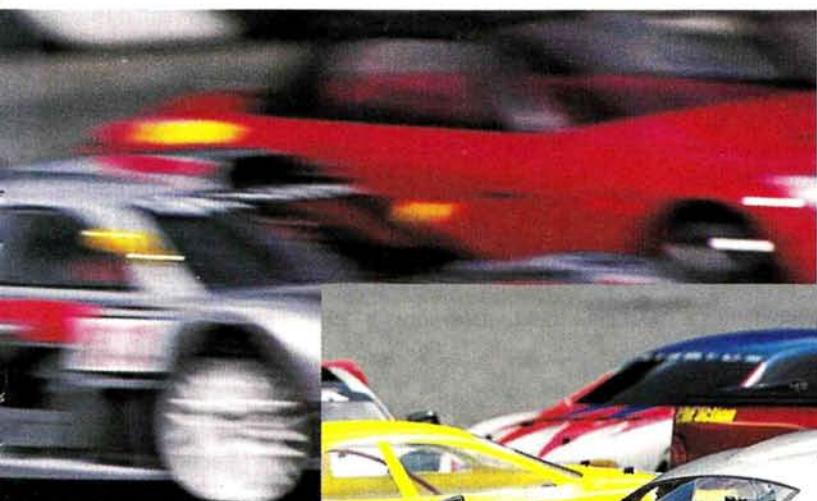
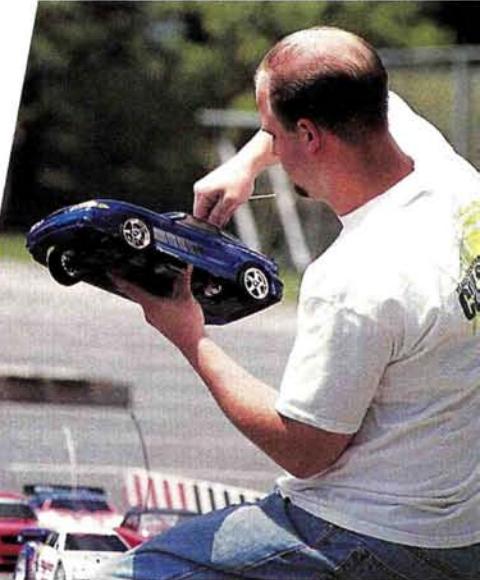
Tire glue \$5

8, AA batteries \$5

# RING CAR SHOOTOUT

OFNA, Tamiya and Traxxas. Which is best?

**Lately**, the ready-to-run (RTR) touring scene has been nitro, nitro, nitro, but a healthy contingent of ready-to-run electric cars brings the best features of the latest nitro RTRs to battery-powered touring. Factory-finished bodies, installed radio gear and ball-bearing drive trains are common, and if ready-to-runs are designed to make life easy for first-time RC hobbyists, an electric is certainly the way to go: just plug in a battery and have fun. To find out how much fun, we hit the parking lot with the current crop of RTR electric touring cars to see how they would stack up. Which one are gonna get?



## RTR 4WD ELECTRIC TOURING CAR SHOOTOUT

### ASSOCIATED RC10TC3 RTR

The ready-to-run TC3 joins Associated's Racer, Team and Factory Team versions of the popular kit. The RTR TC3 uses American-made parts shared with the kit versions, and it can easily transition from fun-running to racing. Reliable electronics from LRP and Hitec score extra points for the TC3 RTR as does the factory-finished Stratus body.

#### CHASSIS

The TC3's molded tub is the unit used on all versions of the TC3 (although the Factory Team model's is graphite). It's slotted for side-by-side packs and accepts stick packs, too.

Stiffening ribs and thick sills keep it rigid, and a cutout beneath the motor increases cooling as it lowers center of gravity.

#### DRIVE TRAIN

Associated keeps it simple with a carbon-composite drive shaft that drives the front and rear ball differentials (with lightweight molded outdrives) directly via a single, bevel gear at each end of the shaft. Enclosed gearboxes keep parking-lot crud out of the works, and a full bearing set keeps everything rolling smoothly.

#### SUSPENSION

The TC3's plastic-body VCS (Volume Compensation System) shocks are factory-filled and are identical to the Racer TC3's units. Steel turnbuckles make the TC3 completely adjustable, and the lower arms are ready to accept swaybars.

#### BODY, WHEELS AND TIRES

Associated provides a fully detailed and trimmed Stratus shell in your choice of red, white and yellow or the traditional Associated blue, red and white. A black rear spoiler and blacked-out window decals nicely complement the screened-on scheme. The TC3 rides on genuine Pro-Line V-Rage tires that come cleanly glued to Pro-Line's white Axis rims. The entire package is given that final pro look with blue-anodized wheel nuts and spoiler fasteners.

#### TEST DRIVE

One pull of the throttle and you realize that Associated held true to its RTR formula by providing competition-capable equipment for a reasonable price. The car is certainly one of the fastest in the group, and its race-proven chassis combined with the V-Rage tires makes the TC3 tops in handling,

too. The car is predictable and a joy to toss around; you can drive it hard and slide it around with the tail hanging out, or reel it in for a more precise ride. The radio gear is also top-shelf—a reliable Hitec Lynx Sport transmitter and LRP reversing ESC—and there's an Associated 20-turn motor.

#### QUICK SPECS

Top speed 21.42mph • Not included Stick pack, charger, 8 AA transmitter batteries • Street price \$259 • Total price\* \$329

\*Total cost of kit with all the required completion items

#### EDITOR'S PICK



**DEREK** I think the most capable racer in the bunch is also the most fun to drive. The TC3 RTR provided the best balance of speed, handling and durability and that's why I think it's the best overall. The OB4 is also a great car, but because it's under-powered, I had more fun driving faster but far less "race-ready" cars. If you add a cheap modified motor, the OB4 would be just as fun as the TC3. Even though the Kyosho Alpha wasn't the fastest car or the best handling, it deserves credit for being the most complete package. The Alpha includes a battery, a charger, and an ESC, which makes it just 8, AA batteries shy of being truly ready to run.

#### INCLUDED ELECTRONICS

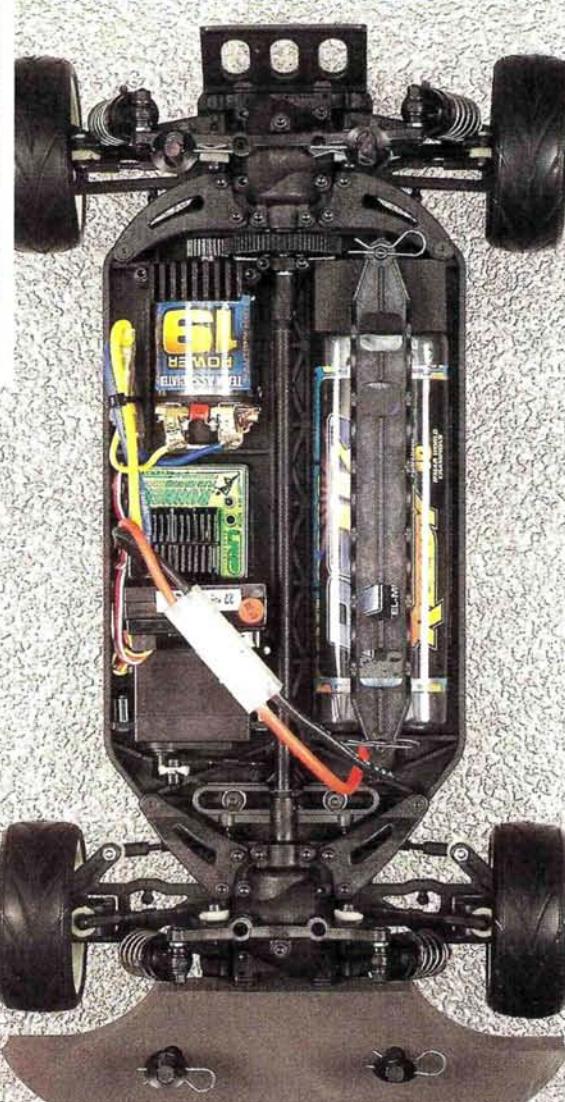
- Team Associated Power 19 motor
- Hitec Lynx Sport transmitter and receiver
- LRP Runner reversing ESC

#### WHAT'S HOT

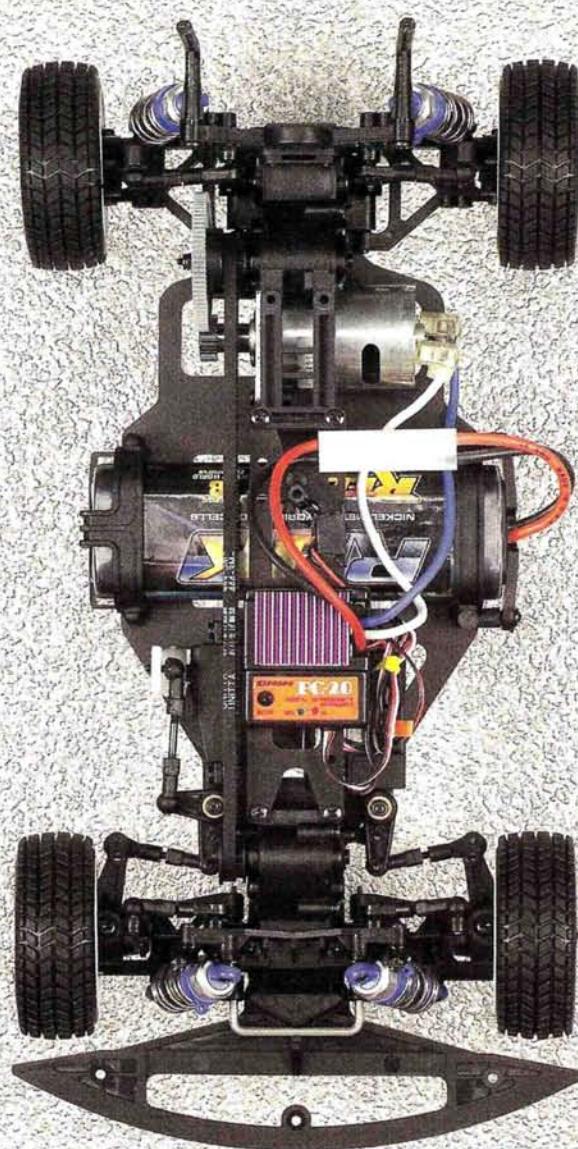
- Genuine, made-in-the-USA TC3 parts assembled overseas.
- Best handling car tested.
- Rock-solid LRP ESC and Hitec radio gear.

#### WHAT'S NOT

- A car of this caliber should include a radio with dual-rate steering.



**WINNER BEST OVERALL**



## CEN GX-1

The GX-1 is CEN's 4-wheel-drive tourer; it features a beautifully painted and detailed body with official racing livery. In the GX-1's case, the shell covers a dual-gearbox, single-belt drive system and fiberglass chassis. CEN's house-brand Mirage III radio set is standard, and a new reversing ESC is a big step up from the 3-speed mechanical unit previously spec'd on the car. Like many of the other cars tested, the GX-1 relies on a basic 540 motor.

### CHASSIS

The GX-1 double-deck fiberglass chassis uses the front and rear gearboxes as bulkheads, which delivers in a reasonably stiff yet resilient touring platform. Molded battery cups secure a 6-cell stick pack (not included), and all the chassis screws are countersunk.

### DRIVE TRAIN

Like the Tamiya TA03, the GX-1's 4WD system uses a single belt to join front and rear gearboxes equipped with bevel-gear diffs. Unlike the TA03, the GX-1 has the spur gear outside the rear gearbox atop the drive pulley, and standard spur gears can be used. Sealed ball bearings are standard in the gearboxes, while the hubs have Ollite bushings. Front and rear dogbones connect the diffs to the stub axles, which use 12mm drive hexes.

### SUSPENSION

If flexibility equals durability, the GX-1 should be a tough customer, as all of its suspension parts have a yielding rubbery feel. It's the usual H-arm/upper-link setup with C-carriers and steering arms, and the welcome addition of threaded camber rods that will allow you to make adjustments if you get the urge to experiment with different setups down the road. The GX-1's purple, plastic-body shocks with aluminum top and seal caps aren't filled, but silicone shock fluid is included.

### BODY, WHEELS AND TIRES

Here's where the CEN cars shine. The GX-1 is offered with a variety of bodies, all with the "P&D" (painted and decorated) treatment. There's a Toyota Supra, Volvo S40, Peugeot 206 and six other styles, all with licensed racing graphics. We tested the Honda Accord version. Attractive 16-spoke wheels and treaded tires complete the scale look, and the tires' thick tread and relatively hard compound should last a long time. Foam inserts are included, and the tires are assembled but not glued; you'll have to supply your own CA and glue 'em up before you run.

### TEST DRIVE

Although it ranked fourth fastest, the GX-1 is under-powered with its 540 stock motor, and it doesn't really go fast enough to challenge the chassis. You'll have to get very aggressive with the steering wheel to get the car loose unless you aim it for sandy patches of pavement. Usually that's a no-no for a belt-driven car, but the GX-1's single, high-mounted belt is kept well away from debris that may foul it. The included reversing ESC proved reliable, and it should easily handle a more robust competition stock or mild-modified motor. That would bring the GX-1 more vibrantly to life, and the 4WD chassis is up to the extra speed.



### \* QUICK SPECS

Top speed 16.84mph • Not included Stick pack, charger, tire glue, 8 AA transmitter batteries

• Street price \$189 • Total price\* \$264

\*Total cost of kit with all the required completion items

## FEATURES AND SPECIFICATIONS

	ASSOCIATED TC3 RTR	CEN GX-1	KYOSHO ALPHA
Wheelbase (in./mm)	10.3/258	10.4/259	10.5/262
Width (in./mm)	7.6/190	7.4/185	7.7/193
Weight RTR (oz./g)	45.5/1,290	46.1/1,308	48.2/1,365
Top speed (mph)	21.42	16.84	14.27
Painted body	Yes	Yes	Yes
Ball bearings	Yes	Yes	No
Drive system	Shaft	Dual belt	Belt
Shocks	Plastic	Plastic	Spring/friction
Speed control	ESC w/reverse	ESC w/reverse	ESC w/reverse
Radio gear	Hitec Lynx	Mirage III	Kyosho Perfex
Street price	\$259	\$189	\$195

### INCLUDED ELECTRONICS

- ★ CEN Mirage III transmitter and 27MHz receiver
- ★ CEN 82108 standard-type steering servo
- ★ SJ Propo PC-20 reversing ESC
- ★ 540 sealed motor

### WHAT'S HOT

- ★ Great-looking body options.
- ★ Reliable ESC blows away any mechanical speed controller.
- ★ Dual-gearbox, high-belt design resists parking-lot debris.

### WHAT'S NOT

- ★ CEN doesn't fill the shocks or glue the tires for you.
- ★ Transmitter feels cheesy (works fine though).

## RTR 4WD ELECTRIC TOURING CAR SHOOTOUT

### KYOSHO PURETEN EP ALPHA READY SET

Kyosho designed the Alpha with an emphasis on simplicity and completeness. The drive train is a gearbox/belt-drive hybrid, and both a 1400mAh stick pack and a 6-hour AC charger are included. Kyosho's house-brand Perfex radio system performs well, and the included electronic speed control is a nice surprise, as the Alpha is one of the least expensive RTRs tested.

#### CHASSIS

The PureTen Alpha features a deeply channeled tub molded in an attractive dark blue and with several ribs to add stiffening. An upper deck runs between the diff housings and further strengthens the main chassis; it also serves as a perch for all the radio gear. A swing-out door in front of the left rear wheel is used to access the stick-pack-only battery compartment.

#### DRIVE TRAIN

Kyosho has the drive motor mounted behind the rear wheels with the pinion turning a 3-gear transmission with a gear diff. A pulley on the tranny's idler-gear shaft transmits power to the front diff via a single belt. Though large shrouds protect the drive belt and pulleys at either end of the chassis, Kyosho nonetheless includes a rudimentary belt tensioner that's intended to alleviate excess slack in the driveline. In keeping with the low-cost theme, metal bushings are used throughout the vehicle.

#### SUSPENSION

The S-2000 has a 4-wheel independent lower H-arm suspension with fixed-length upper camber links. Yes, they look like fluid-damped shocks, but they're actually friction-damped (barely). The S-2000 bounces over all except the smoothest surfaces.

#### BODY, WHEELS AND TIRES

The highly detailed Honda body is painted red at the factory and has only to be final-trimmed and to have the decals applied to complete it. The graphics package includes stickers to complete the look of the raised convertible top, but rather than wrestle with its many compound curves, we opted to just spray the top black matte for a more realistic appearance. The wheel wells are partially trimmed, and

that takes care of what most folks find the toughest part of the body cutting. The S-2000 has 5-spoke chrome rims and foamless rubber slicks that have to be glued before you run the car.

#### TEST DRIVE

The S2000 accelerates well and reaches its top speed quickly, but that top speed isn't much. The car



handles well for the velocity it gathers, and the Perfex electronics offer great control. The ESC's efficiency and smooth operation are definitely appreciated. The friction-type shocks do little to absorb road bumps and tend to make the car "pogo" for a while after it encounters any sort of uneven pavement. Although the Honda is comparatively slow against the others in our shootout, speed is not the only parameter to consider here. The car is an entry-level sedan aimed at giving first-time street enthusiasts everything they need in one package, and it does that well. More than anything, the S2000 gives a complete package to start from with room to grow, too.

#### EDITOR'S PICK



**PETER** I think the TC3 is the best car overall, given its excellent included electronics and highly raceable chassis. But it's not my only favorite! I'm a chassis man, and the OB-4's graphite plates, beautifully finished aluminum bulkheads, trick shocks and pivot-ball suspension definitely push my high-tech buttons. I even like the clear body; I'm not into the blacked-out windows of RTR bodies, and I don't mind shooting my own shells. The electronics say "play," but the OB-4 is a full-dress racer that is ready to accept the best racing gear and win at any level. If I had to choose one car and leave it stock, it would be the TC3 RTR, but for the driver who wants an RTR but appreciates all the gee-whizery of a "pro" touring car, the OB-4 International is a terrific package.

#### INCLUDED ELECTRONICS

Kyosho

- X-Speed 540 motor
- Perfex KT-2 transmitter and KR-2 receiver
- Perfex KS-201 servo
- Perfex KA-1 ESC

#### WHAT'S HOT

- Inexpensive, yet includes battery, charger and ESC.
- Perfex radio is a keeper.

#### WHAT'S NOT

- If there are folks out there who like the look of white electronics, we haven't met them.

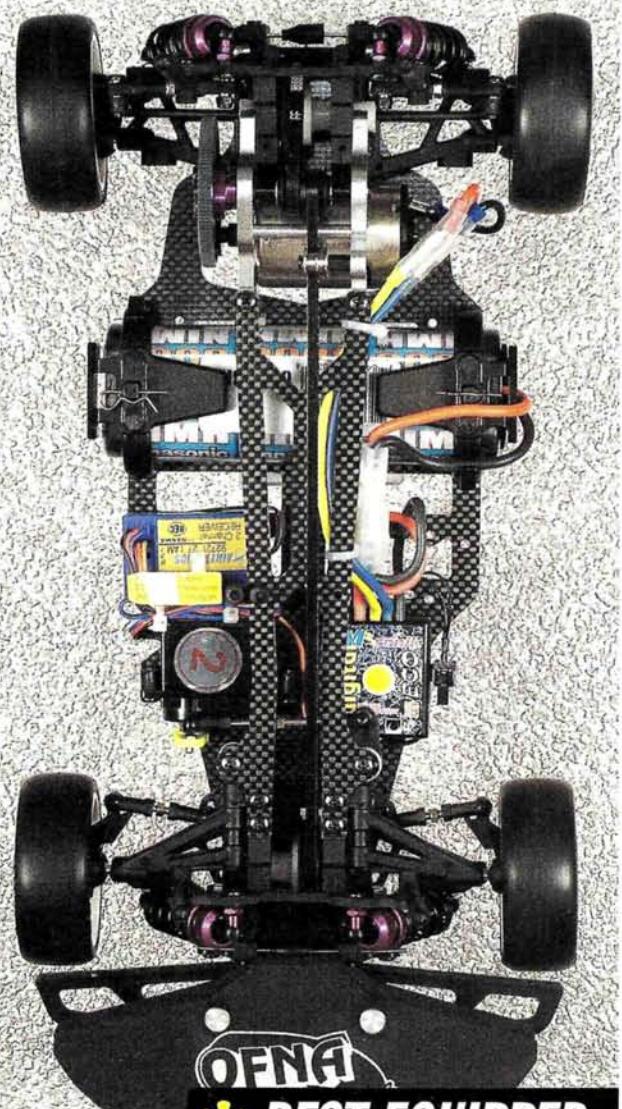


## ★ MOST COMPLETE

#### ★ QUICK SPECS

Top speed 14.27mph • Not included 8, AA transmitter batteries • Street price \$195 • Total price\* \$200

\*Total cost of kit with all the required completion items



## OFNA ★ BEST EQUIPPED

### INCLUDED ELECTRONICS

- ★ Airtronics Blazer radio system
- ★ Airtronics 94102 steering servo
- ★ M-Sonic ECO reversing ESC
- ★ 540 motor

### WHAT'S HOT

- ★ Graphite chassis, aluminum bulkheads, threaded aluminum shocks; this thing is exotic.
- ★ Reliable electronics from Airtronics and M-Sonic (say that five times fast).
- ★ Clear body is a plus if you prefer a personalized look.

### WHAT'S NOT

- ★ Clear body is a bummer if you don't like to paint.
- ★ Included motor isn't up to the capabilities of the chassis.

# OFNA OB-4 INTERNATIONAL

In terms of stock spec, the OB-4 is easily the raciest of the RTRs. With its gleaming graphite chassis, pivot-ball suspension, businesslike machined-aluminum bulkheads and threaded, aluminum-body shocks, it looks every bit the racer. An M-Sonic reversing ESC is standard as is the name-brand Airtronics Blazer radio system.

### CHASSIS

The OB-4 International sports a double-deck carbon-fiber chassis. The bottom deck features openings below the diff that allow debris to exit the drive system. There's a total of eight slots in the chassis for the batteries—four on each side. Hook-and-loop straps will hold saddle packs for the performance-minded driver, but most buyers will simply slide a stick pack into the molded holder to get on the road quicker.

### DRIVE TRAIN

The OB-4 has a dual-belt-drive system with ball differentials at each end and is supported by a full set of ball bearings. The diffs even feature lightweight Delrin outdrives—highly desirable racing items that aren't expected on an RTR. The front wheels are driven by CV-style universals, and the rears get their power from steel dogbones.

### SUSPENSION

Pivot-ball suspension has become very popular on the racing scene, and OFNA incorporates it into its RTR car. The front pivot suspension allows camber and track adjustments, and caster and toe can also be adjusted to get your car dialed in to any track condition. The rear arms have double pivot balls on the ends to allow toe and track adjustments, and an upper link takes care of the camber adjustments. Damping is taken care of by threaded-aluminum, oil-damped shocks that are bolted to carbon-fiber shock towers.

### BODY, WHEELS, AND TIRES

A genuine Andy's Accord body is included with the OB-4 International, but it's clear, so break out your paint cans. Relatively soft slick tires are factory-glued to OFNA split-spoke wheels, and foam inserts are included.



### TEST DRIVE

The OB-4's exotic chassis is completely unchallenged by the included 540 motor, which delivered a top speed of 15mph—that's on par with the other 540-powered cars, but slower than the 20-turn machines and certainly much slower than a race-ready car like the OB-4 "wants" to go. As such, driving the OB-4 couldn't be any easier: just clamp the throttle and aim the nose. OFNA has put together an excellent package, but the OB-4 needs a competition stock or budget modified motor to bring it closer to its performance potential. That's the only upgrade this fully loaded package needs.

### QUICK SPECS

Top speed 15.08mph • Not included: paint for body, transmitter batteries, charger, stick pack • Street price \$325 • Total price\* \$399

\*Total cost of kit with all the required completion items

## FEATURES AND SPECIFICATIONS

	OFNA OB-4	TAMIYA TL01	TRAXXAS 4-TEC
Wheelbase (in./mm)	10.4/260	10.3/258	10.2/256
Width (in./mm)	7.5/187	7.3/182	7.0/175
Weight RTR (oz./g)	45.3/1,283	32.7/926	48.5/1,375
Top speed (mph)	15.08	15.67	21.68
Painted body	No	Yes	Yes
Ball bearings	Yes	No	Top shaft only
Drive system	Dual belt	Shaft	Dual belt
Shocks	Aluminum	Spring/friction	Plastic
Speed control	ESC w/reverse	3-step	3-step
Radio gear	Airtronics Rival	ADSPEC GP	Traxxas TQ
Street price	\$325	\$215	\$189

## RTR 4WD ELECTRIC TOURING CAR SHOOTOUT

# TAMIYA XB TL01 SERIES

The TL01 is a nearly perfect first RC car in kit form, so it's a perfect candidate for the RTR treatment. The heavy-duty shaft-drive system is beginner-proof, and the chassis' low parts count (along with a mechanical speed control) keep the price low. So far, four versions of the XB (eXpert Built) TL01 are offered: a Ford Mustang and Ford Lightning pickup, both with the Ford Special Vehicle Team hot-rod treatment, and a pair of rally cars—the Mitsubishi Lancer Evolution V1 and Subaru Impreza '99. Tamiya radio gear (manufactured by Futaba) keeps both machines under full control.

### CHASSIS

The Tamiya TL01 features a simple, two-piece monocoque plastic chassis with integrated gearboxes, shock towers and suspension mounts. The clamshell chassis encloses the radio gear and accepts a stick-type battery pack.

### DRIVE TRAIN

A 19-tooth pinion gear drives the TL01's transmission; optional 23- and 21-tooth gears can also be used. A steel drive shaft connects the front and rear gearboxes, and Tamiya's classic 3-gear diffs spin the wheels via dogbones. The entire drive train is supported by plastic bushings.

### SUSPENSION

The TL01 chassis is suspended by short, two-piece arms and undamped shocks that make for a bouncy ride. The one-piece camber links are not adjustable but are bombproof, and the stubby, integrated shock towers are equally damage-resistant.

### BODY, WHEELS AND TIRES

All of the Tamiya XB cars come with painted, trimmed, decaled and mounted bodies. The Lightning and Mustang come with 5-spoke chrome rims, while the Subaru and the Mitsubishi feature the correct gold and white rims of the full-size cars. The "hard" kit tires are not glued from the factory.

### TEST DRIVE

We thought the TL01 was a great beginners' car as a kit, so it's no surprise that we think it makes a great RTR. The enclosed shaft drive is pebble-proof, and the chassis can take any type of abuse. The undamped shocks gave the car a bouncy ride with lots of body roll, but handling remained crisp. If anything, the highly active suspension added to the sensation of speed, as the TL01 was only mid-pack in top speed, but it felt faster at the transmitter.

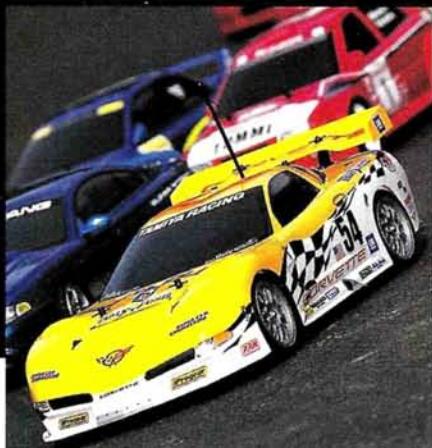
### \* QUICK SPECS

Top Speed 15.67mph • Not Included Stick pack, charger, tire glue  
• Street price \$210 • Total price\* \$298 \*Total cost of kit with all the required completion items

### EDITOR'S PICK



**KEVIN** I'm into the TL01—the Mustang in particular. Just look at it! Tamiya detail without touching a can of paint or cutting out a single decal! Sure, it has pogo-stick shocks, but who cares? The car is all about zero-maintenance fun, and the TL01 series delivers it in spades. Later, there are plenty of ways to get more performance out of the simple chassis, and the radio gear is worth keeping for other projects. For beginners, I think the combination of a great-looking body, bombproof chassis, and high-quality radio set makes the TL01 RTRs tough to beat.



### Just paint the body for me!

**W**hile many RTR buyers are attracted to the idea of not having to build, we think just as many are OK with building but simply don't want to paint. That's why we think Tamiya is on to something with its newest TA04 variant, the "S" model (for a review, see "New Kit News" in this issue). The TA04-S is sold as an unassembled kit, but it includes a beautifully finished Corvette C5-R body. Could this be the start of a new trend? Clear bodies will always be with us, and they represent the greatest outlet for personalization and creativity, but wouldn't it be nice to hit the track with a painted body as soon as you've finished enjoying the chassis buildup?

### INCLUDED ELECTRONICS—all Kyosho

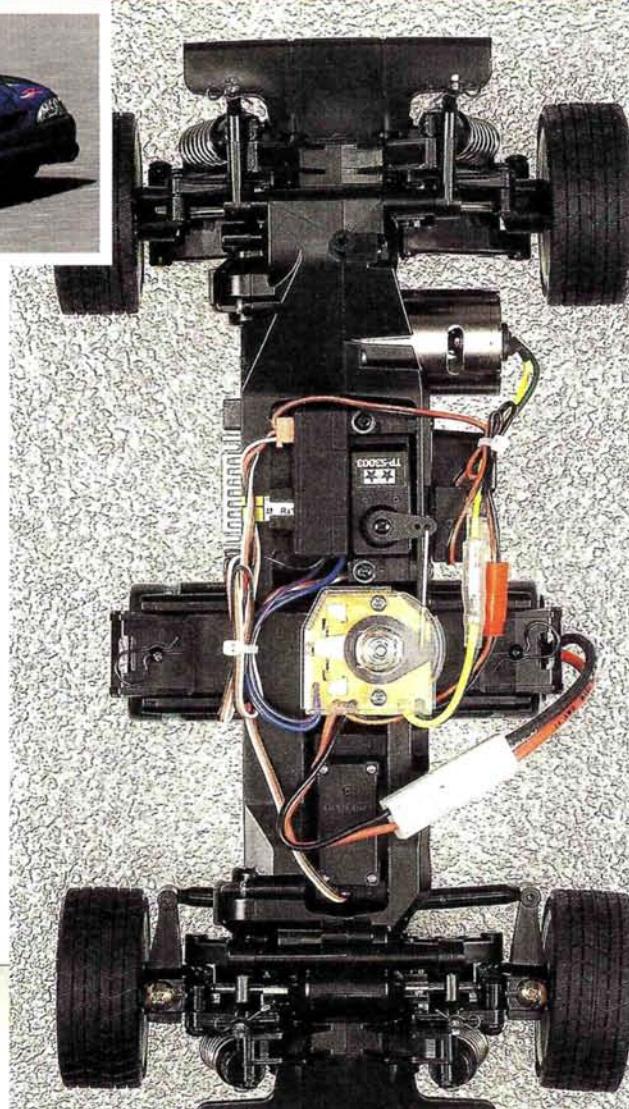
- ★ Tamiya ADSPEC GP 2-channel radio and receiver
- ★ Two Tamiya TP-S3003 servos
- ★ 3-step mechanical speed control
- ★ Mabuchi 540 stock motor

### WHAT'S HOT

- ★ Excellent painted and decaled bodies; beautifully plated wheels.
- ★ High-quality Futaba-built radio gear.

### WHAT'S NOT

- ★ Undamped shocks give the TL01 a pogo-stick ride.
- ★ Tires aren't glued.



**★ BEST BODY**



## TRAXXAS 4-TEC

The 4-TEC is feature-packed and includes: telescoping universal drive shafts; a faster than stock, Stinger, 20-turn, ball-bearing dual-belt drive train; and ball differentials as standard equipment. Traxxas' TQ radio system and a 3-speed mechanical speed control with reverse take care of the controls, and the factory-finished ProGraphix body is a standout.

### CHASSIS

The double-deck chassis is made of molded plastic. The main lower chassis is flat and has large openings underneath the battery compartment and motor. These openings allow fresh air to cool both and also reduce weight. The molded upper deck features a large tunnel that shields the belt from dirt and protects your fingers.

### DRIVE TRAIN

The 4-TEC has a dual-belt system. Traxxas includes a bearing for the top shaft, which is subjected to the highest load in the drive train, but the rest of the car has metal bushings. You'll see ball differentials in the front and rear, and plastic universal drive shafts transfer power to the wheels.

### SUSPENSION

The 4-TEC is the only car we tested that has a double-wishbone front suspension. Slide the upper arms back and forth on their hinge pins to adjust caster, and thread the ball cups for the top steering-hub pivots in and out of the arms to adjust camber. The rear suspension is a typical H-arm, upper-link setup, which is also adjustable (with minor disassembly), thanks to its threaded upper links. Factory-filled Traxxas Ultra plastic shocks control the 4-TEC on bumpy pavement.

### BODY, WHEELS AND TIRES

The 4-TEC comes with a painted Opel Calibra-style body. It's available in four main-color options (red, blue, silver and purple). A full set of decals, including headlights, windows and a sponsor decal is included. The chrome-finished mesh wheels are Inch-Up style. Pro-Line V-rage wheels with foam inserts are included. The tires are not glued on at the factory and definitely should be before you hit the pavement.

### TEST DRIVE

At 21.5mph, the 4-TEC was the fastest car in the group, and it has enough power and speed to get some fun, 4-wheel-drift action going. The 3-step mechanical speed control worked as well as such units can, but it required constant tweaking from the radio to keep the neutral point properly adjusted. The 4-TEC was responsive and easy to drive, and it felt as if it could easily handle a hotter motor; it's a car you can grow with.



### QUICK SPECS

Top speed 21.5mph • Not included Stick pack, charger, AA batteries, tire glue  
 • Street price \$189 • Total price\* \$265 \*Total cost of kit with all the required completion items

### EDITOR'S PICK



**BOB** The TC3 is arguably the best RTR here, but in terms of most fun for the dollar, I'll take the 4-TEC. When I consider the price of the car along with its drivability, looks and overall fun, it's my top choice. The 4-TEC's flared Calibra-esque looks, V-rage tires and 20-turn motor add up to an experience that you can't describe with a mere spec sheet. The car has plenty of power, it's the fastest, and who needs an ESC? In the world of parking-lot fender banging, it's full throttle full time! ■

## \* FASTEST - 21.5mph

### INCLUDED ELECTRONICS

- Traxxas TQ transmitter and receiver
- Traxxas 2055 steering servo
- 20-turn Stinger motor
- 3-step mechanical speed control

### WHAT'S HOT

- Lots of features: ball diffs, 20-turn motor, universals ....
- Great-looking factory-painted and trimmed body.

### WHAT'S NOT

- It's functional and reliable, but the TQ radio has a low-budget feel.
- Tires aren't glued.

### SOURCE GUIDE

#### ASSOCIATED

3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; [www.rc10.com](http://www.rc10.com); [www.teamassociated.com](http://www.teamassociated.com).

#### OFNA RACING

22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; [www.ofna.com](http://www.ofna.com).

#### TAMIYA

2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; [www.tamiya.com](http://www.tamiya.com).

#### TRAXXAS

12150 Shiloh Rd., #120, Dallas, TX 75228; (972) 613-3300; [www.traxxas.com](http://www.traxxas.com).

#### CEN

CEN/Genka Trading Corp., 1800 East Miraloma Ave., Ste. F, Placentia, CA 92870; (714) 792-1923.

#### KYOSHO

Distributed by Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948; [www.kyosho.com](http://www.kyosho.com).

by Greg Vogel and Derek Buono

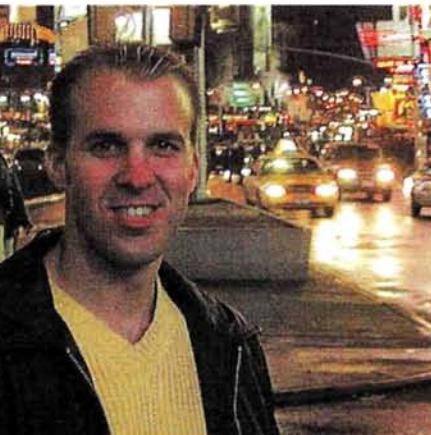
## Triple-XT Francis Edition coming soon?

Team Losi isn't talking, but rumors of a Kinwold Edition-style Triple-XT have been

bouncing around the Web and in the pits for a few weeks now. If the rumors are true, though, it won't be a BK-mobile; instead, the 1995 IFMAR World Champ, Matt Francis, will get to have his mug on the box. No matter what it's called, a graphite-and-all-the-upgrades Triple-XT is almost a sure thing—but we're rooting for Matt.

## Paul Lemieux joins Team Trinity

Chumacher phenom Paul Lemieux has switched from Fantom to Trinity power for his Axis 2. Paul has been a fixture in on-road winners' circles since he won the 2001 NORRCA Carpet Nats, and he only stands to get faster.



## PRO-LINE TRACK UP AND RUNNING

Pro-Line's on-site proving ground for tires (and goof-off excuse for Mark Pavidis), previously seen under construction in "Racer News," is now fully online. Pro-Line has been running a series in conjunction with the famous "The Dirt" track right up the street. Imagine having two awesome off-road tracks within 10 minutes of each other. Here are the dates for the remaining races at "The Dirt" and Pro-Line tracks.

DATE	PLACE	START TIME (all a.m.)
6/23	The Dirt	10
6/30	Pro-Line	9
7/14	Pro-Line	9 (make-up race)
7/21	Pro-Line	9
8/11	The Dirt	9
9/8	The Dirt	10
9/29	Pro-Line	9
<b>ALSO</b>		
8/18-19	Pro-Line	Pro-Line Factory Tour
9/14-16	Pro-Line	Endless Summer Classic



"Is my car ready yet? How 'bout now? Hey—how 'bout that car? Is it ready yet?"

## Masami to race Yokomo 4WD Works Buggy at Off-Road Worlds

No pictures yet, but insiders say Masami Hirosaka has been testing a new prototype Yokomo 4WD buggy for the upcoming 2001 IFMAR Electric Off-Road Worlds. So much for those retirement rumors! The race should be a tight one, with Losi, Kyosho, Schumacher and Yokomo battling for the title.

## SITE SEEING

**Ackerman Steering and Racing Oval Tracks**

Many years ago, the Ackerman steering geometry was discovered to how it influenced the turn-in rates. Computational Analysis shows the very developed systems (1970 AD, 1976, 1979, and 1980). The Ackerman settings to have all four wheels hitting toward a common point during a turn.

The diagram above shows that the front wheel has to turn more degrees than the outside rear wheel for the turn to be made.

Most short track oval tracks have a corner radius of 125'. For a race car that has a 100" wheelbase and 45" width, the inside tire would need to turn 4.4 degrees and the outside tire would need to turn 3.3 degrees to have Ackerman steering. In other words, the inside wheel would turn more than the outside wheel during a turn.

However, a racing open car uses steering what is known as a slip angle. Coupled the term "slip angle" it has nothing to do with slipping or sliding. Instead, it describes the turning or leaning of the body's center of gravity. So, not enough for racing has to develop 8 or 10 degrees of slip angle before they attain traction. 10-12 degrees seem to develop as much as 10 degrees static angle before they attain traction.

Given the magnitude of this static angle in the turn, the need of a degree or two difference mentioned earlier is negligible. So, when racing open cars, the turn radius is not concerned. Ackerman off the list of concerns. For more information on race car Ackerman see the [Ackerman](#) section.

Alignment angles and corner Chassis setup will lead to Ackerman as "you see." This is because Ackerman steering geometry causes the wheels to turn during a turn. You need to turn the steering to maintain the turn. For more information on race car Ackerman see the [Ackerman](#) section.

**WWW.AUTOWARE.COM/SETUP/ACK\_RAC.HTM**

Ever wonder what the heck those other Ackerman positions on the steering are for? Do you even know what Ackerman is? This website has some good information about when to change the Ackerman in your steering.

# SPEED SHOP



## Tamiya factory upgrades for TA04

Both the tub-chassis and double-deck versions of the TA04 can benefit from the latest Tamiya option parts. The "hard" parts replace the kinda-flexible-for-durability pieces with firmer composite plastic; suspension arms, standard rear uprights and 2-degree toe-in uprights are offered in the stiffer stuff to remove flexing for more consistent handling. Front and center one-ways are available to increase corner speed. A lightweight aluminum rear diff replaces the stock steel outdrives for less rotating mass and quicker acceleration, and a machined-alloy spur-gear hub replaces the stock plastic mount so your spur gear runs perfectly true. Turnbuckles and universal drive shafts are also offered; you can't race without those.

**Tamiya America Inc.**, 2 Orion, Aliso Viejo, CA 92656-4200; (800) TAMIYA-A; [www.tamiya.com](http://www.tamiya.com).

**Front one-way unit**—part no. 53411, \$51.99.

**Hard suspension arms**—53427, \$16.99.

**Hard rear uprights**—53428, \$7.99.

**Toe-in rear uprights**—53472, \$9.

**Ball-diff kit**—53436, \$28.99.

**Aluminum spur-gear hub**—53452, \$17.99.

**Center one-way**—53450, \$36.99.

**Universal drive shaft**—53438, \$37.99/pair.

**Turnbuckle tie-rod set**—53457, \$5.99.

**Turnbuckle upper arm set**—53456, \$7.99.

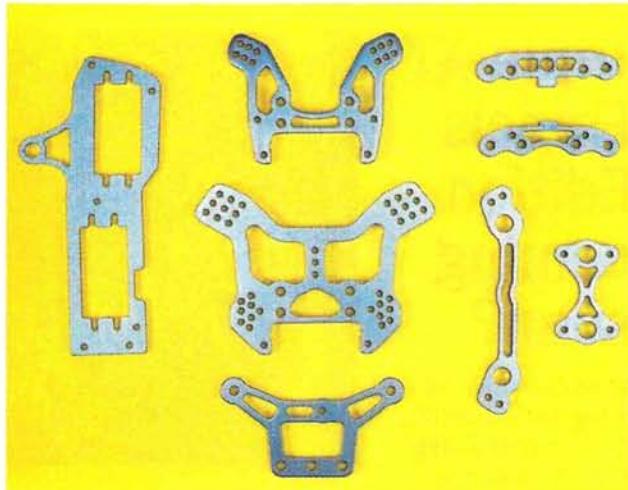
## Yokomo Special conversion kit

The MR-4TC gets a major update for 2001, but you don't have to junk your current MR-4 to get the same spec. The new

Special conversion kit will fit any of the MR-4TC series and includes a slimmer, sleeker chassis, a front one-way, a new upper deck, a machined-aluminum battery strap and a lightweight spur-gear adapter and center shaft.

**Yokomo USA**, Airport Business Center, 17951 Skypark Cir., Ste. K, Irvine, CA 92614; (949) 252-8663; [www.yokomousa.com](http://www.yokomousa.com).

**Yokomo MR-4TC Special conversion kit**—ZS-SPC, \$125.



## Hardcore Racing titanium upgrades for Kyosho MP 7.5 and Mugen MBX4

Kyosho MP 7.5 and Mugen MBX4 owners can now outfit their rigs with ultra-tough Hardcore Racing titanium parts. The MP 7.5 gets a ti radio tray, front bulkhead brace, front pin brace, center diff brace, steering-link rear pin brace and front and rear shock towers. The Mugen gets a ti radio tray, center diff brace, bulkhead brace and front and rear shock towers. These parts are all made of titanium and are available in silver, blue, green and purple.

**Hardcore Racing Components**, 25435 Rye Canyon Rd., Valencia, CA 91355; (661) 294-5032; [www.racinghardcore.com](http://www.racinghardcore.com).

**MP 7.5 shock towers (F/R)**—HCR-00421/HCR-00422, \$40/\$45.

**MP 7.5 steering link**—HCR-00423, \$36.

**MP 7.5 center diff brace**—HCR-00424, \$32.

**MP 7.5 front bulkhead brace**—HCR-00425, \$42.

**MP 7.5 pin braces (F/R)**—HCR-00427/HCR-00426, \$30 each

**MP 7.5 radio tray**—HCR-00428, \$42.

**MBX4 shock towers (F/R)**—HCR-00623/HCR-00624, \$42/\$48.

**MBX4 bulkhead brace**—HCR-00625, \$32.

**MBX4 center diff brace**—HCR-00626, \$38.

**MBX4 radio tray**—HCR-00627, \$42.

**MBX4 titanium bulkhead brace**—HCR-0062X, \$32.



## Corally C4.1 upgrades

Corally has some new tuning parts to further enhance the C4.1's capabilities. A one-way front diff and one-way pulley are available to replace the front ball diff and standard adjustable front one-way, and they will increase cornering speed. The new pulley is also 16-tooth instead of the standard 17-tooth; this will affect acceleration out of corners.

Corally USA recommends the smaller pulley for tighter tracks with lots of stop-and-go acceleration. Aluminum threaded shock bodies will replace the stock plastic jobs. The cushioned transponder mount keeps the transponder out of the way and as close to the front of the car as possible. The large foam bumper cushions the impact from barriers and prevents the body from being deformed in a crash.

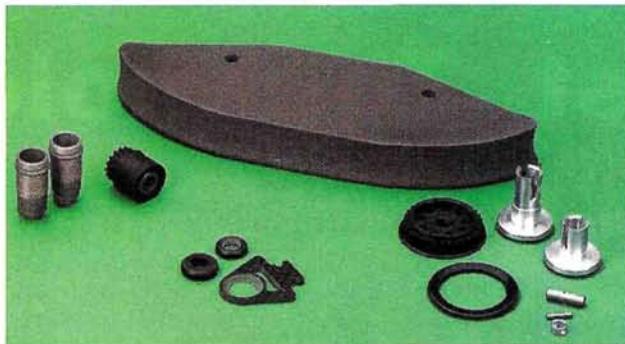
**Corally;** distributed by Specialized RC Intl., 1480 S.R. 436, Casselberry, FL 32707; (407) 681-5906; [www.corallyusa.com](http://www.corallyusa.com).

**One-way diff set—\$7166, \$60.**

**Pulley with one-way bearing—\$7316, \$22.50.**

**Aluminum threaded shock bodies (F/R)—\$7221/\$7226, \$30/\$7.50.**

**Transponder mount—\$7395, \$12.50.**



## OFNA Fail Safe Adapter

If you race nitro, then this little device should be in your car. OFNA's Fail Safe Adapter protects your investment from radio interference and failure. Set the unit to apply the brakes when the signal is lost or the receiver-pack voltage is too low, and you'll never have to worry about a full-throttle runaway, especially if you also use a throttle-return spring.

**OFNA Racing**, 22692 Granite Way, Ste. B, Laguna Hills, CA 92653; (949) 586-2910; [www.ofna.com](http://www.ofna.com).

**Fail Safe Adapter—\$91002. Call for price.**

## Peak Performance Power Drops, Lubes and Wash

Peak's Power Drops are claimed to reduce friction and increase the power of your electric motor, and they can also be used to reduce arcing when you break in a motor. Power Lube is for all other rotating parts and can be used on bearings and bushings. And Power Wash cleans motors, engines and other dirty RC stuff.



**Peak Performance**, 22601 La Palma Ave. #104, Yorba Linda, CA 92887; (714) 692-8533; [www.peakmotors.com](http://www.peakmotors.com).

**Power Drops—PEK2416, \$7.99.**

**Power Lube—PEK2426, \$4.99.**

**Power Wash—PEK2450, \$5.99.**



## Pro-Line body clips

OK, they're just body clips, but aren't you always looking for one? Or four? Like, right before your race? Pro-Line offers this pack of 20 that will probably last the average racer a weekend. OK, a day. Who are we kidding? We'll probably lose all 20 before the Mains.

**Pro-Line/Jaco**, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; [www.pro-lineracing.com](http://www.pro-lineracing.com).

**Body clips (20/package)—\$6050, \$3.50.**

## TRACK THREADS

### Team Associated jacket

Diehard racers who must race during every season might want to bundle up in Associated/Reedy's embroidered jacket when it's chilly out. The jacket has a hideaway hood, a heavy-duty zipper and snaps, and it comes in a two-tone royal and navy blue. It is also waterproof and fleece-lined to keep you warm. It has three zippered pockets—two outer and one inner—to store trackside tools or just keep your hands warm before your race.

**Team Associated**, 3585 Cadillac Ave., Costa Mesa, CA 92626; (714) 850-9342; fax (714) 850-1744; [www.teamassociated.com](http://www.teamassociated.com).

**SP-411 (sizes medium through XXXL)—\$79.99.**



## 5 QUESTIONS

Age: 23

Sponsors: Trinity, Kyosho, KO Propo, TRC, LRP, JP Racing Engines, Motor City Collectibles

Last big win: Australian New South Wales Championship (1/8 Worlds warm-up)

When I'm not racing: I sleep as much as possible, in-line skate, go bowling and try to find other fun stuff to do.

**Radio Control Car Action:** I'm not sure everybody knows that you started in Oval. How did it feel to get back into that scene?

**Josh Cyril:** I grew up racing a lot of Oval. That's where I got my first sponsorship. It is a tough class; it isn't as easy as most people think. You have to be extremely smooth and pay close attention to the car so you get every last little bit out of your setup and equipment. You can outdrive people a little, but not the way you can on a roadcourse or off-road. My favorite class is 1/2 road-course, with 1/8 on-road gas a very close second.

**RCCA:** Are you still driving a Trans Am, or have you switched to the import scene?

**JC:** I still have my '99 Trans Am. I do like all the imports they have in Cali, but here in Michigan, the roads are so bad, I would worry about tearing it up too much. My Trans Am has enough ponies to have fun!

**RCCA:** What was the worst racing blunder you ever made?

**JC:** Hmm ... I've had a few. The first off-road race I ran for Associated was the '92 Truck Nationals in Grand Rapids. I had just gotten new tires from Pro-Line, and I was doing fairly well, but I forgot to glue the inside edge of my rear tires. After about a minute, the tires started coming off. I noticed right away and pulled off the track. Of course, a few of the guys were watching, and I wanted to crawl underneath the stand. At another race, I blew out my ankle during practice when I ran back to change crystals. In Houston, I sent poor Ryan Hand running through the pits something like five times because I kept wiring my motor in backwards.

**RCCA:** The jig is up: you were spotted testing a prototype Trinity touring car at the Reedy race. Were you happy with it?

**JC:** Actually, I was pleased with the car's overall handling. I was able to turn fast laps, and the car was fast through most of the track. It lost some speed at the end of the straight, but I already know a few things that will fix it. I have already started on the next version, and it will look much cleaner.

**RCCA:** I've heard talk of a control insert for the next Reedy race. What are your thoughts on control tires?

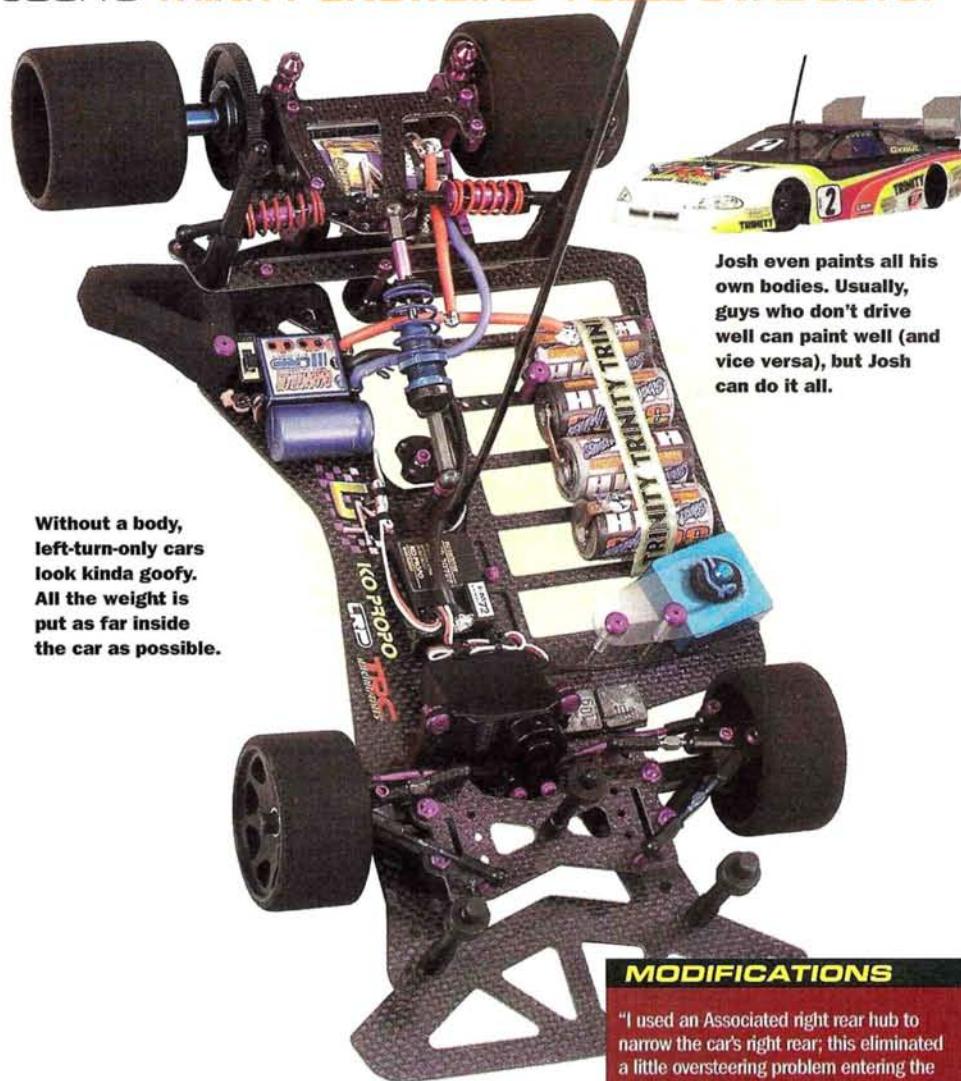
**JC:** Tires are just out of control; if we didn't have control tires, we'd spend all our time playing with different compounds. I'm actually for foams on all touring cars. With foams, you don't have to worry about getting the right combo. Sure, you lose some realism, but do real cars have one-ways?



**Josh Cyril**

# UNDER THE HOOD

## JOSH'S TRINITY SNOWBIRD 4-CELL OVAL SETUP



Without a body, left-turn-only cars look kinda goofy. All the weight is put as far inside the car as possible.

Josh even paints all his own bodies. Usually, guys who don't drive well can paint well (and vice versa), but Josh can do it all.

### MODIFICATIONS

"I used an Associated right rear hub to narrow the car's right rear; this eliminated a little oversteering problem entering the corner. I cut the top plate and went to a longer center-shock location. This helped smooth the car out on bumpy tracks. I mounted the transponder as close as I could to the left front tire because when you run a lot of tweak or left rear weight, the left front tire will pick up entering the corner and the car will push. This helped keep it down."

### JOSH'S STANDARD SETUP

**Toe:** 1-degree toe-out

**Front springs:** Constant Green

**Damping:** Trinity Red Stuff

**Ride height (F/R):** 0.1875/0.200 in.

**Camber:** -2.5 degrees (right front); 0 degrees (left front)

**Caster:** 3 degrees (right front); 1 degree (left front)

No reactive caster, medium ball studs on the right front and tall ones on the left front

In-line front axles

**T-bar:** 0.077 in.

**Short wheelbase width (F/R):** 7.375/8 in.

**Battery position:** cells in the center four slots

### SHOCKS

**Side:** standard piston, Associated red springs, 35WT oil

**Center:** no. 1 piston, Associated blue spring, 35WT oil

### EQUIPMENT

**MOTOR:** Trinity 9X2

**RADIO SYSTEM:** KO Propo Special Edition

**STEERING SERVO:** Futaba S9602

**ESC:** LRP Quantum

**RECEIVER:** KO Propo

**BATTERY:** Trinity Shock metal hydride

**TIRES (F/R):** TRC Purple (right), TRC Magenta (left)/TRC Black (right), TRC Pink (left)

**RIMS:** TRC

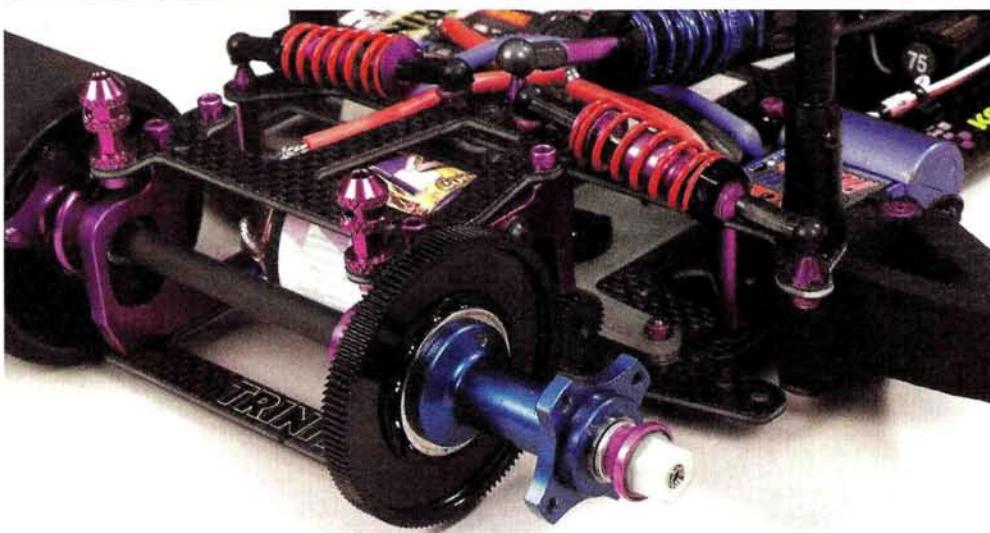
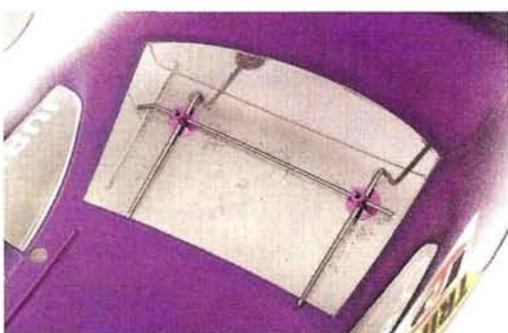
**BODY/WING:** Protoform Dodge Intrepid/Mike Boyland's rear wing

**PINION/SPUR:** 28/124



## FACTORY DRIVER HOT MOD

**C**heck out this little trick Josh used to mount the rear wing. Instead of bolting the wing to the chassis, he used some Trinity wing-mounting buttons and some extra wing wire to form a T-brace.



Racers will use any part to make them go faster. To narrow the rear end a little, Josh went with an Associated diff hub.



That's an Associated rear shock with a custom extended shock cap. To get a longer shock-mounting location, Josh cut the upper plate on the rear pod and then had to modify a shock to get the extra reach he needed.



The front suspension is as adjustable as they come. Don't clip any boards, or it's back to the tweak board for you!

### SOURCE GUIDE

#### ASSOCIATED ELECTRICS

3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; [www.rc10.com](http://www.rc10.com); [www.teamassociated.com](http://www.teamassociated.com).

#### FUTABA

Distributed exclusively by Great Planes Model Distributors Co., P.O. Box 9021, Champaign, IL 61826; (800) 682-8948; [www.futaba-rc.com](http://www.futaba-rc.com).

#### KO PROPO USA INC.

16012 South Western Ave., Ste. 308, Gardena, CA 90247; (310) 532-9355; [info@kopropo.com](mailto:info@kopropo.com); [www.kopropo.co.uk](http://www.kopropo.co.uk).

#### LRP ELECTRONIC

Distributed by Associated Electronics and available from LRP Electronic, Wilhelm-Enssle-Strasse 132-134, 73630 Remshalden, Germany; 1149-7181-4098-0; [www.lrp-electronic.de](http://www.lrp-electronic.de).

#### PROTOFORM INC.

Distributed by Pro-Line/Jaco, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; [www.pro-lineracing.com](http://www.pro-lineracing.com).

#### TRC

36 Meridian Rd., Edison, NJ 08820; (732) 635-1600.

#### TRINITY PRODUCTS INC.

36 Meridian Rd., Edison, NJ 08820; (732) 635-1600; [www.teamtrinity.com](http://www.teamtrinity.com).

## LAST LAP

**Would you rather win the B-main or finish last in the A-main? Why?**

I would rather win the C-main than either of the above choices.

*Nick Pinkham*

I would rather finish last in the A-main so I could say that I was in it. If I finished first in the B-main, I'd be happy, but I would still feel like just a "B" driver, rather than an "A" driver.

*Chris Woods*

I would rather win the B-main than finish last in the A-main, simply because no one remembers a loser! Sure, you can say you raced in the A-main, but you are going home with nothing. The winner of the "B" has something to take home.

*Sean Frayser*

I'd rather be the tail of a lion than the head of a fox.

*Asaf Porat*

I would rather finish last in the A-main because if you can beat everyone in the B-main, you have no room for improvement. Racing with people who are better than you will improve your skills.

*Zach Williams*

I would rather win the B-main because what is the fun in losing? Give me the glory of winning, and I'm happy. A-main? A-main? We don't need no stinkin' A-main!

*Daniel Rebstock*

I would rather finish last in the A-main. I always strive to do my very best in every race that I drive. It's more fun for me to drive my best and lose to the top drivers than to drive less than my best and beat the second tier of drivers. You can only improve your skills by racing against better competition.

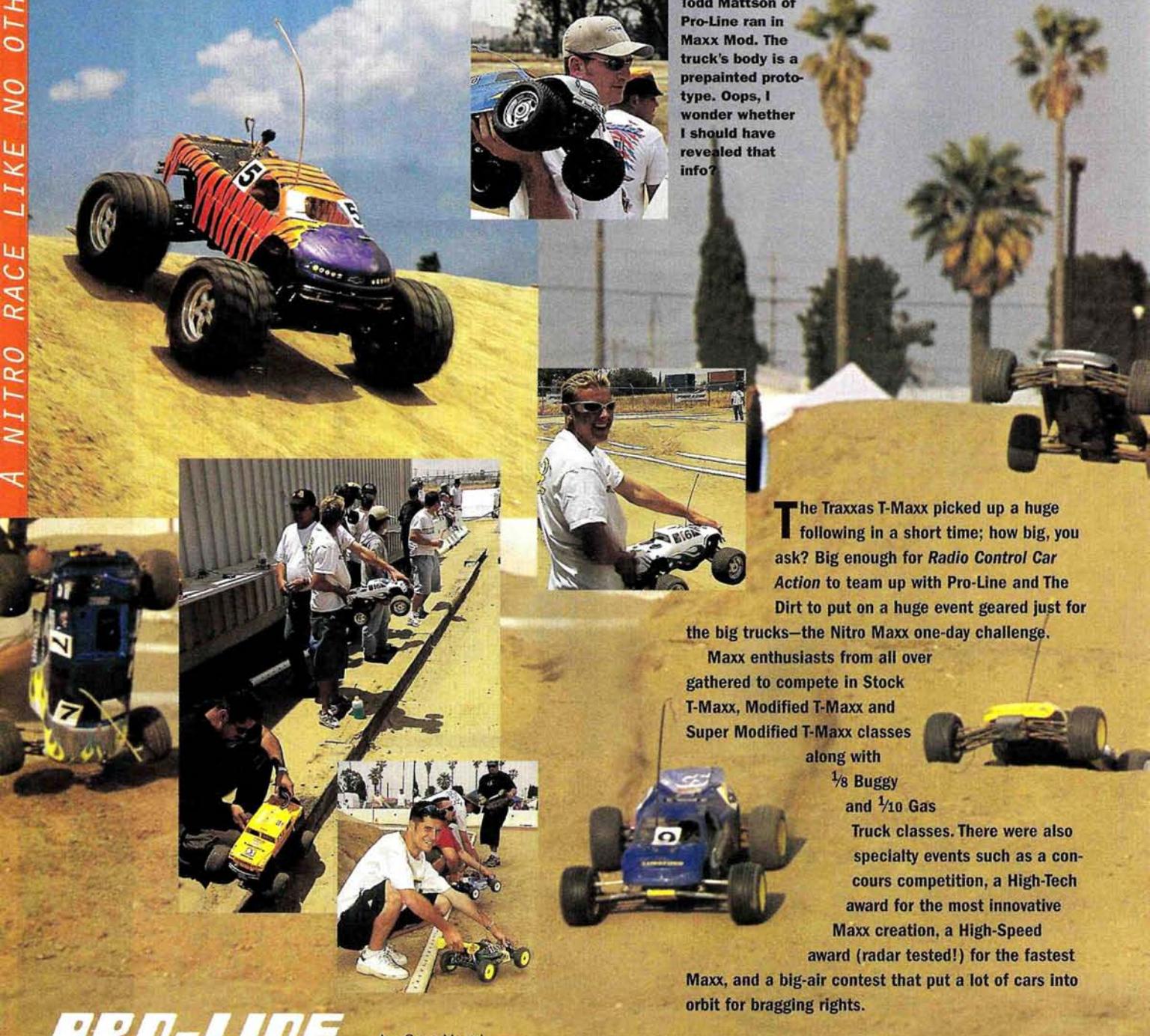
*Matthew Balle*

### NEXT MONTH'S QUESTION

**Josh Cyril says, "I'm for foams on all touring cars." What do you think?**

Respond by clicking "Last Lap" at [www.rccaraction.com](http://www.rccaraction.com), or email your responses to [gregv@airage.com](mailto:gregv@airage.com). ■





Todd Mattson of Pro-Line ran in Maxx Mod. The truck's body is a prepainted prototype. Oops, I wonder whether I should have revealed that info?

The Traxxas T-Maxx picked up a huge following in a short time; how big, you ask? Big enough for *Radio Control Car Action* to team up with Pro-Line and The Dirt to put on a huge event geared just for the big trucks—the Nitro Maxx one-day challenge.

Maxx enthusiasts from all over gathered to compete in Stock T-Maxx, Modified T-Maxx and Super Modified T-Maxx classes

along with

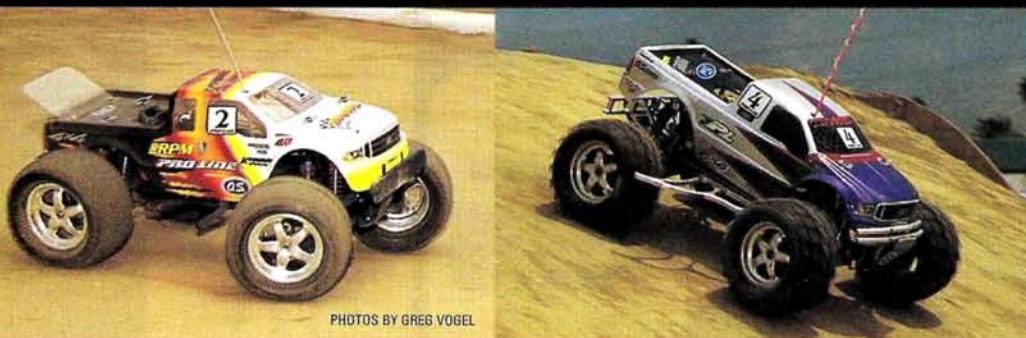
$\frac{1}{8}$  Buggy and  $\frac{1}{10}$  Gas

Truck classes. There were also specialty events such as a concours competition, a High-Tech award for the most innovative Maxx creation, a High-Speed award (radar tested!) for the fastest Maxx, and a big-air contest that put a lot of cars into orbit for bragging rights.

# PRO-LINE NITRO MAXX CHAMPIONSHIP

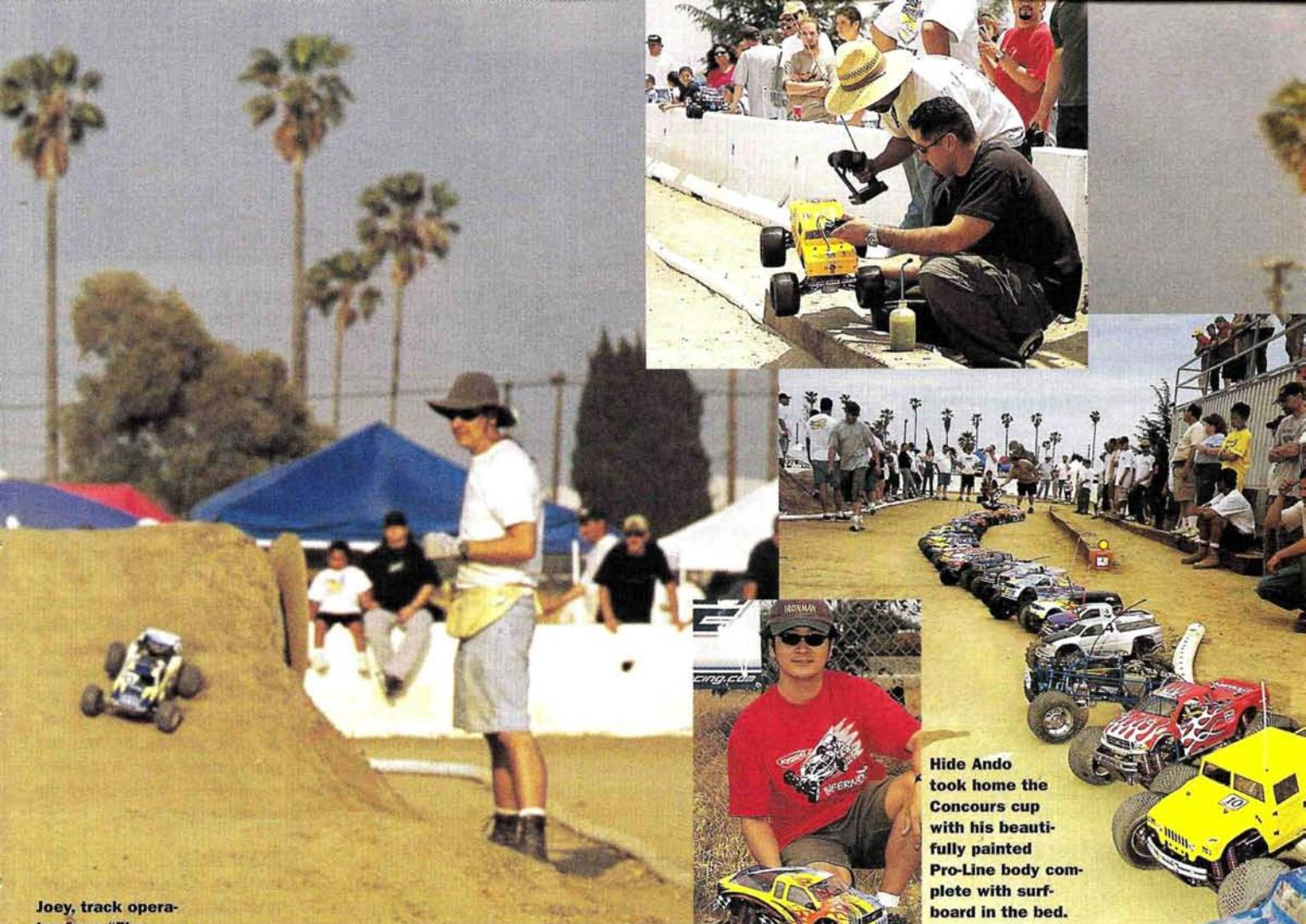
by Greg Vogel

SPONSORED BY PRO-LINE, RADIO CONTROL CAR ACTION

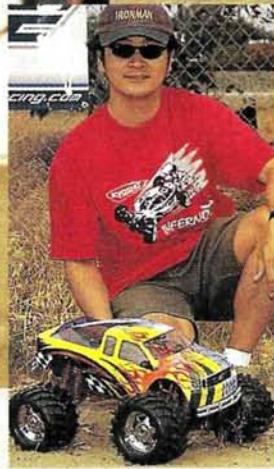


PHOTOS BY GREG VOGEL

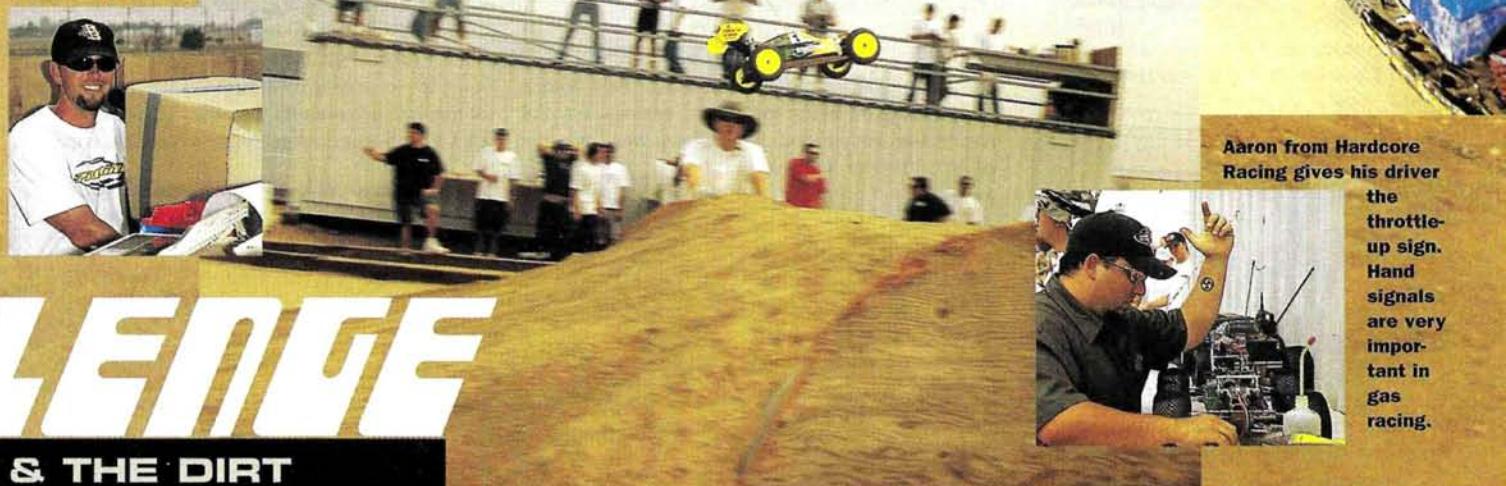




Joey, track operator from "The Dirt," was on hand to organize the racing. Nice cardboard box, Joe.



Hide Ando took home the Concours cup with his beautifully painted Pro-Line body complete with surfboard in the bed.



CHALLENGE  
& THE DIRT



Aaron from Hardcore Racing gives his driver the throttle-up sign. Hand signals are very important in gas racing.





**Kyosho**  
took the  
two top  
spots in  
Buggy,  
thanks to  
O.S. power  
and the  
talents of  
Chad

Bradley and Gene Hickerson. Raymond Norte put his Mugen into third (also with O.S. power).



Marty Korn put his Associated/Hardcore truck into the top spot but not without a challenge from Chad Bradley and his Associated GT; both trucks had Mugen power. Vince Stolo's Novarossi-powered Triple NXT took third.



Four  
trucks,  
two  
DNFs,  
one win-  
ner:  
Dean  
Baker.  
Dean's  
custom-

chassis truck ran with Thunder Tiger .21 power. Richard Blackwood, Chris Higa and Allen Kennedy rounded out the field.



Scotty Hughes was beaten in Mod Maxx by Jeff Tonkin's Hardcore-prepped machine and Randy Hernandez' O.S.-powered truck. Poor "Squirrel"!



Joe  
Hegman,  
Mark  
Vega and  
Barry  
Karakas  
finished  
1, 2, 3 in  
Stock  
Maxx.

There was a huge turnout; more than 140 vehicles were registered to run. The T-Maxxes were separated into their respective classes, and heat assignments were posted. Because of the large turnout, it was agreed to run only one do-or-die qualifying round; racers made sure their rides were in top running condition for a chance to make it to the A-main. The track consisted of a huge step-up jump, a field with moguls the size of soccer balls and a long straightaway so the Maxxes could hit second gear. Traction posed a challenge to many drivers whose cars ran loose on the track. Here's the lowdown on the races and the awards.

### MAXX STOCK

The rules were simple for all classes: any aftermarket options were allowed. "Stock" had only two stipulations: stock electronics had to be used (which meant that only six trucks could run in each Main because only 6 channels were available for the stock Traxxas TQ3 radio), and the powerplant had to remain stock (all racers ran Traxxas TRX-15 engines).

Racing throughout the day was a little rough; some drivers had problems tuning their engines to the weather conditions while others had trouble hooking up. But the Main was exciting. Joe Hegmann, Mark Vega and Barry Karakas finished one, two, three in all seven laps; Joe finished almost 30 seconds ahead of Mark.

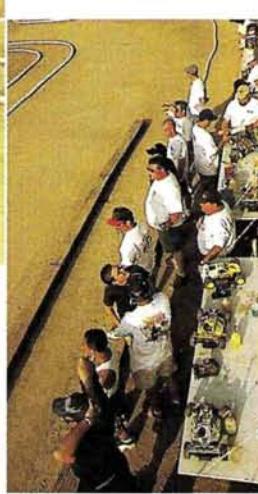
### MAXX MOD

This class was free of stipulations; all modifications were allowed to parts, radios and engines. But the engine size was capped at .15. If you went over the cubic centimeter limit, you were placed in the next class—Super Mod.

The Mod guys also had their share of running troubles, but the 7-minute Main was still exciting. At the tone, the pack took off, and it was an awesome spectacle to see a bunch of Maxxes attack the track. Jeff Tonkin took the top spot and the win with an 8-lap run; Randy Hernandez took second with a 7-lap run; Scott Hughes was third.

### SUPER MOD

This was the "anything goes" class in which guys ran .21 conversions, extended-wheelbase trucks and trucks with high-zoot radio gear.



These mean-looking trucks tore up the track during the heat race, but in the Main, it was all Dean Baker who kept his Thunder Tiger .21-powered truck together and took home the win; Richard Blackwood was second.

### JUMP COMPETITION

Pro-Line constructed a huge ramp for a jump-off. The vehicles were separated by category—T-Maxx, 1/8-scale Buggy and 1/10-scale Truck. The jump was in the center of the straight, so contestants were able to gain speed at the beginning of it and during the last turn.

The best way to describe the jump-off is sick air, back flips and maximum carnage. The judges gave up trying to measure the distances that the vehicles jumped and let the crowd decide who was the winner. Of all the crazy jumpers, the crowd most went nuts over Andrew Streety, who took off on the ramp and flipped his T-Maxx truck over backward onto its roof. We heard a loud crack as the truck hit, and this was followed by fuel spraying out the sides. A spectator picked up the battle-wounded truck and spilled the rest of the juice on the landing strip. Cool!

### SPEED RUN

Set up alongside the Pro-Line warehouse, the strip was lined with bales of hay on one side, while a curb and fence provided a barrier along the other side. At the end of the strip, a wall of empty Pro-Line boxes served as a catch barrier for vehicles that couldn't stop in time. Yours truly manned the *Radio Control Car Action/RC Nitro* magazine Stalker radar gun to get the speeds.

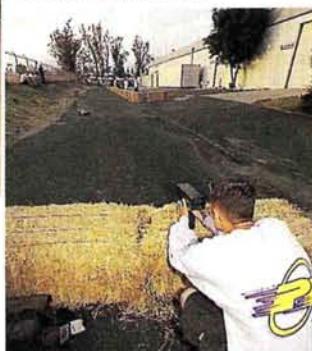
Racers did everything they could to clock the fastest time. They leaned their engines to get maximum speed, revving them hard to keep them clear and at running temperature; then their pit crews gave the cars a hand-launch to get them to high speed quicker.

**Brian "Skinny" Skinner** took home the High-Tech award with his Atomic Bodies-sponsored, water-cooled T-Maxx.





The Pro-Line jump ramp; killer, isn't it?



Below: Jeff Tonkin's Mod Maxx was the truck to beat.



Many trucks were clocked in the mid-30mph, while the  $\frac{1}{8}$  buggies flirted with 50mph.

Some drivers made suicide runs, keeping the throttle pegged until their vehicles hit the catch boxes and hay bales at the end of the straight. It was crazy.

## CONCOURS

Before the racing, in one of the longest lines I've ever seen, drivers took their vehicles to the straightaway to be judged for the concours event. Judging wasn't easy; there were so many excellent paint jobs, lights and chrome—and even a miniature surfboard. The surfboard, along with a highly detailed body, gave Hide Ando the huge silver concours cup.

## HIGH-TECH AWARD

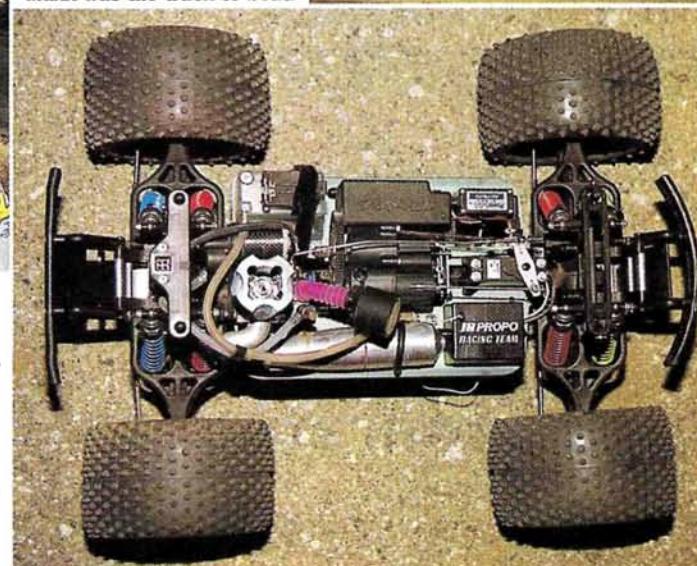
While the trucks were lined up for concours, the judges also took note of the high-tech chassis. Exactly what is high-tech? Judges looked for truck modifications, but not just store-bought or bolt-on mods; they wanted to see creative parts handmade by the trucks' owners.

It wasn't easy for the judges as the trucks had many neat modifications and machined parts. They narrowed the field and then picked Brian Skinner's water-cooled T-Maxx as High-Tech winner. Brian used a Traxxas water-cooled head and made his own water storage tank to feed liquid to the engine.

## THE WRAP-UP

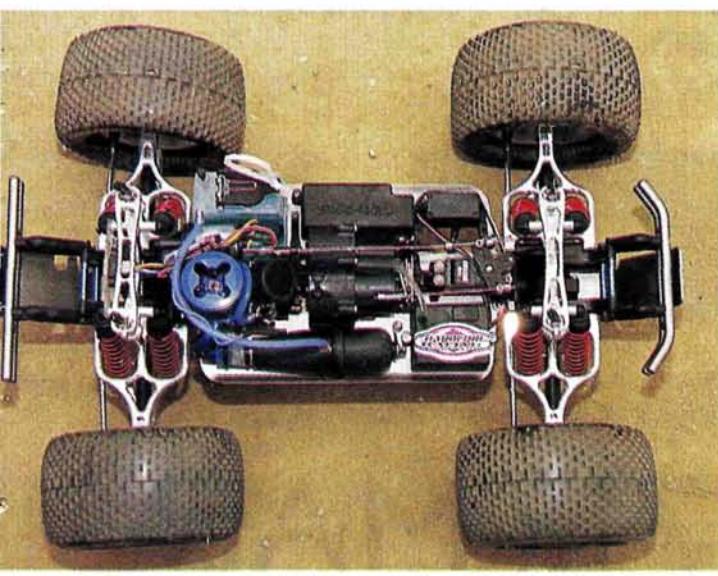
We all had the time of our lives. I heard only positive remarks from the drivers on how much fun they had. Even though I was just a spectator, I had an absolute blast seeing a new form of racing along with the "specialty" events. If you have a chance to attend next year's race, I say, "Do it!" ■

Above: The drag strip was lined with bales of hay in case one of the vehicles went out of control at high speed. The Maxx trucks averaged around 35mph, while some of the  $\frac{1}{8}$ -scale buggies hit 50mph. If the strip had been longer, I bet we would have seen higher speeds.



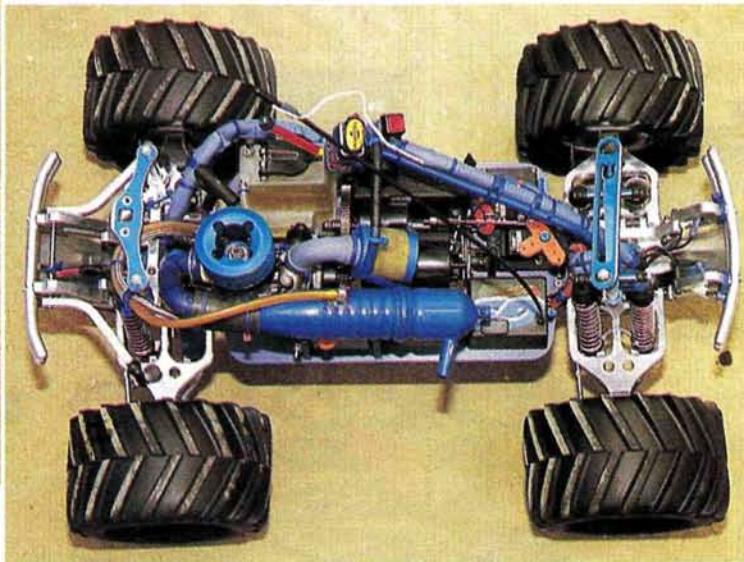
FIN.	QUAL.	DRIVER	CHASSIS	ENGINE	FUEL	RADIO	TIRES	BODY
<b><math>\frac{1}{10}</math> Gas Truck</b>								
1	2	Marty Korn	AE/Hardcore	Mugen	Dynamite	Airtronics	Pro-Line	Pro-Line
2	1	Chad Bradley	Associated	Mugen	O'Donnell	JR	Pro-Line	Pro-Line
3	4	Vince Stolo	Losi	Novarossi	O'Donnell	Airtronics	Pro-Line	Losi
<b><math>\frac{1}{8}</math> Buggy</b>								
1	1	Chad Bradley	Kyosho	O.S.	O'Donnell	JR	Pro-Line	Pro-Line
2	6	Gene Hickerson	Kyosho	O.S.	O'Donnell	KO Propo	Pro-Line	Kyosho
3	4	Raymond Norte	Mugen	O.S.	Byron	JR	Pro-Line	Mugen
<b>Stock T-Maxx</b>								
1	5	Joe Hegmann	Stock	Traxxas	RedLine	Traxxas	Panther	Traxxas
2	7	Mark Vega	Stock	Traxxas	Pit Stop	Traxxas	Pro-Line	Pro-Line
3	8	Barry Karakas	Stock	Traxxas	Trinity	Traxxas	Pro-Line	Traxxas
<b>Modified T-Maxx</b>								
1	3	Jeff Tonkin	Hardcore	Traxxas	Dynamite	KO Propo	Panther	Traxxas
2	2	Randy Hernandez	Stock	O.S.	Traxxas	Airtronics	Pro-Line	Pro-Line
3	8	Scott Hughes	Stock	O.S.	INS	KO Propo	Pro-Line	Pro-Line
<b>Super Modified T-Maxx</b>								
1	1	Dean Baker	Custom	Thunder Tiger	O'Donnell	Airtronics	Panther	Pro-Line
2	2	Richard Blackwood	Custom	Megatech	Dynamite	Futaba	Stock	Atomic
-	3	Chris Higa	Stock	O.S.	O'Donnell	Airtronics	Pro-Line	Pro-Line

\* INS = Information not supplied by driver



Marty Korn represented Hardcore Racing products with his fully loaded T-Maxx and was also a finalist in High Tech.

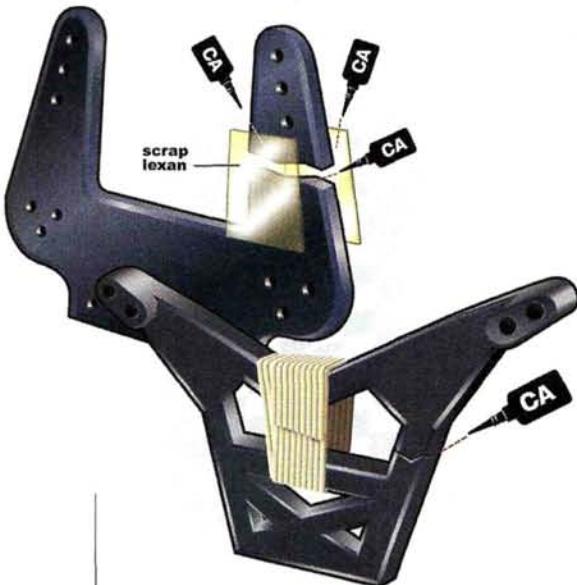
Mike Steele's truck featured lights and a load of options and was a finalist for the High-Tech award.



# Quick Fixes

## TRACKSIDE Fixes

by the staff of *RC Car Action*



### BROKEN SHOCK TOWER

Shock towers are designed to be strong in "shear"; the shock loads are trying to pull the tower straight off the car, not bend it back and forth. Towers tend to break when something does bend them back and forth—usually an upside-down crash landing. The best fix depends on the material the tower is made of.

- **Fiberglass or graphite.** These materials respond well to thin CA; fit the broken pieces together, saturate with CA, then let dry. For added security, you can add a "splint" by sandwiching the broken halves between strips of plastic laminated to the tower with CA. Where do you get strips of plastic? You can use Lexan scraps, or cut down one of the dividers from your pit-box drawers.

- **Molded shock towers.** These can be tricky to fix, as the breaks usually have too little surface area for glue to be very effective. But you should glue the parts together, preferably with thick CA, which won't run out of the break as you work. After the glue has dried, you can add meat to the repair. First, use zip-ties to squeeze the broken pieces together. Next, wrap fiberglass tape tightly around the tower, and orient the tape so it also squeezes the parts together. You may have to cut down the tape to a very narrow strip, and that's OK. The important thing is to get a few wraps of the non-stretch fiberglass filaments around the parts. If you rely on the zip-ties, the tower is likely to come apart because zip-ties stretch easily.

## RC Emergency!

Are you one of those guys who won't run your car unless it's perfect? Do you bail out because you think your diff might not last the entire Main? If so, this article isn't for you. This is for you never-say-die racers who keep running until the car just won't go or the race director tells you to pull it off the track. The tips detailed here aren't meant to be permanent repairs, and there's no substitute for doing the job right with fresh parts. But when the time and resources to do it right aren't available, one of these tips just might make the difference between victory and a DNF.

### STRIPPED GEARS

How stripped are they? Gears usually strip because the pinion or clutch bell has crept away from the spur gear, leaving only the very tips of the gear teeth to carry the load. The tips strip and fold over, leaving what appears to be a totally wasted spur gear. But in most cases, you can use a hobby knife to cut away the folded-over tooth slivers, to reveal usable gear surface beneath. After you've cleaned up the gear, run the mesh a little tight to make sure the spur holds up for the full five minutes of your race. As soon as you get the opportunity, replace the gear; the repaired gear will strip again.

**before**



**after cleanup**



## BROKEN TURNBUCKLE

Remove the turnbuckle halves and unthread the shorter stub from its ball cup. Next, separate the shank from the cup of another ball cup, so the shank becomes an open plastic tube. If necessary, drill through the shank to open it up. Now use the shank as a coupler to tie the broken turnbuckle together. If you don't have a spare ball cup for this trick, try drilling through a servo mount or a section of body post.

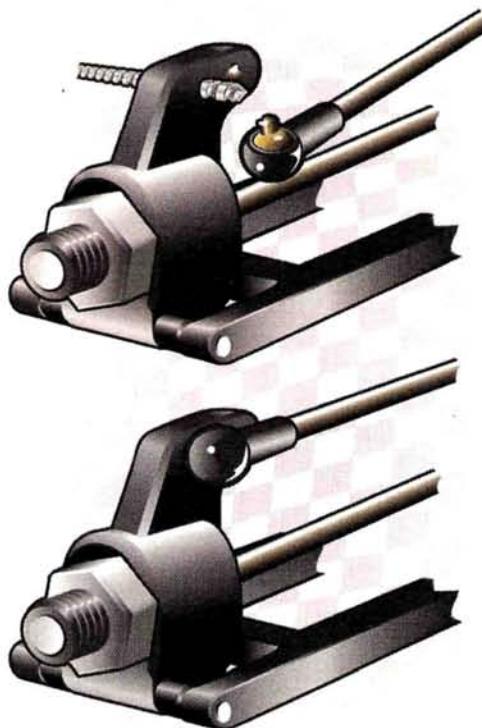
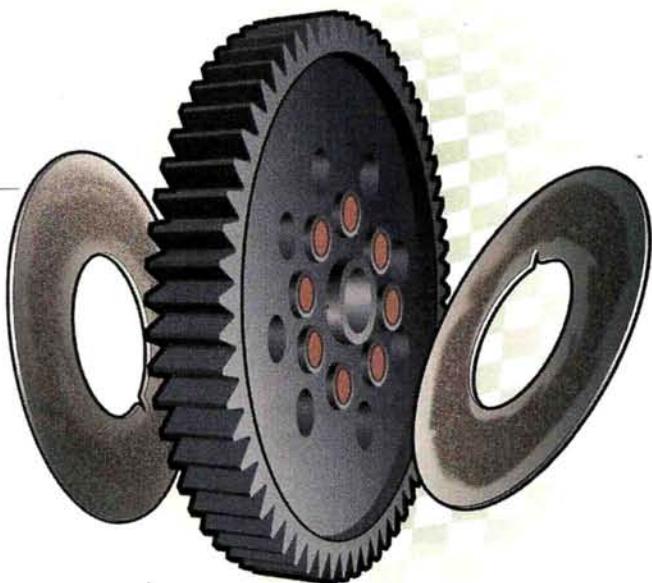


## BROKEN BALL STUD

If your ball studs have flats on them, or any threads are still protruding from the bulkhead or hub, you should be able to unscrew the stud remnant with a pair of pliers and install a fresh one. But if the break is flush with the bulkhead or hub surface, you're done. The fix? Drill a new hole as close to the broken-off stud as possible, then thread in the new stud and adjust the length of the camber link or tie rod to compensate. Your car may already have another hole close by. Yes, you will be altering the suspension geometry slightly, but if you drive well enough to notice, then you certainly have the skill to drive around it.

## BLOWN DIFF

Prevention is key here: if your diff is slipping badly in a qualifier, and there's no way you can get spare parts, sacrifice the qualifier and save the diff. With luck, you can simply flip the diff rings over to expose fresh steel, reassemble the diff, and make the Main with a fully operational tranny. If you let it go too long, and the slippage has created enough friction-induced heat to melt the diff gear, you may be in deep trouble. For certain, the diff won't work with a melted gear. But if the gear is still straight (no side-to-side wobble or up-and-down hop when you spin it), you can sock the diff down tight (CA it, if you must) for a "posi-traction" setup. You'll lose a lot of steering, and you'll probably have to powerslide the car through turns, but you'll be racing.



## Be prepared!

When it comes to tools and spare parts, more is always better. But if you haven't amassed a giant collection just yet, at least be sure you have these essentials:

- **Rotary tool.** A 2-speed tool is fine if you're trying to save money, but skip the wimpy battery-powered models unless you often run where there is no AC power. Make sure you get a reinforced cutoff wheel, sanding drum and grinding wheel to go with the tool, if they aren't included.
- **Pin vise and drill bits.** At the very least, pack a drill bit that is the same diameter as your car's hinge pins and another that is sized to drill holes for screws to tap into.
- **Fiberglass strapping tape.** The real strength of this tape isn't in its stick but in its stretch—or lack thereof.
- **Zip-ties.** Get a package of the thin 4-inch ties and the wider 10-inch ties. Better-stocked hardware stores will have them in black as well as white, if you care.
- **Thick and thin CA glue.** The thin stuff is good for repairs where you want the glue to "wick" into parts made of fiberglass or graphite, and the thick stuff is good for repairs that thin CA tends to flow out of.
- **Spare parts.** The more, the better. If you upgrade parts of your vehicle, keep the stock parts in your box, just in case. The steel turnbuckle you were going to throw away just might save the day this weekend.
- **Spare hardware.** You never know what you'll need, so save it all. Diff balls, E-clips, bits of threaded stock and any type of screw, nut and washer should be stashed in your pit box.

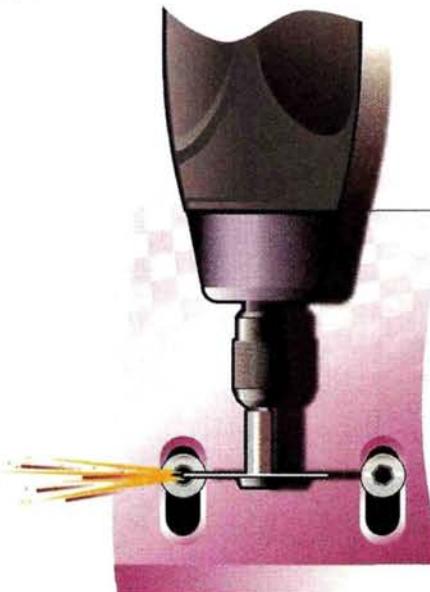
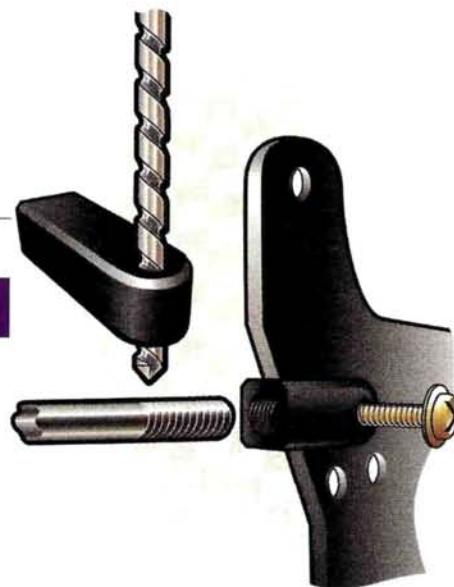


## STRIPPED PINION

Do you want to save the pinion, or just get it off? If the pinion is headed for the trash, break out the rotary tool and just slice down to the motor output shaft. Cut through the setscrew, and the pinion will slide right off. If you want to salvage the pinion, remove the motor from the car, then remove the motor's endbell. Prop the motor can up on a pair of bricks or two toolboxes, or anything else that will work (see the pictures), so the armature can slide out. Now push the pinion against the nose of the can so you can use it as an anvil, and drive the motor's output shaft out of the pinion using an  $\frac{1}{8}$ -inch tool tip or hinge pin as a punch. Eye protection is a good idea.

## BROKEN BALL CUP

Unthread the stump of the old ball cup from the turnbuckle or tie rod, and remove the ball stud it was attached to. Thread a servo mount or a section of body post (or similar hunk of plastic) onto the turnbuckle. Next, drill a hole (or enlarge the existing hole) in the end of the servo mount just large enough so it can pivot on a screw with the same threads as the ball stud you removed. Now attach the makeshift ball cup to the hub or bulkhead by threading a screw through the ball cup into the bulkhead or hub. It's hack, but it works.



## STRIPPED SCREW HEAD

Most racers already know this trick; simply use a cutoff wheel in your rotary tool to slot the screw, then back it out with a screwdriver. Wear eye protection. ■

# Speed up your Nitro RTR

From fast to faster by the staff of RC Car Action

**R**emember how fast your RTR seemed when you first got it? Driving it was like holding the reins on a wild bronco; now, it seems more like a pony ride. What happened? You got used to it! Now that you have Jedi Master driving skills, you're ready to increase the velocity of your RC experience. Here's how to do it.

## Step 1. Get the crud off it!

### SPEED INCREASE 1 TO 2MPH

Want some free speed? Clean and lube all of your machine's moving parts. If your car or truck's drive train is covered with a fuzzy coating of dirt and exhaust goo, you can bet the parts aren't spinning as freely as they should. Now, we know you bought an RTR to avoid wrenching, but the time has come to wrench. At the very least, you should remove the drive axles from the hub bushings, pop the bushings out of the hubs, and clean them all with denatured alcohol. Reassemble the parts with fresh grease, or replace the bushings with bearings. That sounds like a good step 2 ....



## Step 2. Install bearings

### SPEED INCREASE 2 TO 3MPH

If your car is equipped with bushings, you can free up the drive train by installing bearings. We mention bearings in every hop-up article for one simple reason: they reduce friction, and that increases speed. The best tool for installing bearings is the axle that rides in them. Just slip the bearings over the axles one at a time, press the bearings into the hubs, then spin the axles to make sure the bearings are fully seated.

## Step 3. Get a tuned pipe

### SPEED INCREASE 3 TO 5MPH

More and more RTRs are going to tuned-style exhausts, but plenty of canister-type mufflers are still out there, heating up engines and robbing you of horsepower. Check your car's manual for a factory option exhaust, or install an aftermarket system such as this one from Megatech. When you install a tuned-pipe system, remember to apply thread-lock to the manifold screws, and zip-tie the coupler where it slips over the pipe and manifold.



## Step 4. Truck guys: swap those monster treads for performance tires

### SPEED INCREASE 2 TO 3MPH

If you're after speed, then you probably run on pavement, so why scrub off miles per hour with pavement-slapping monster-truck bar treads? Dump the Bigfoot rubber for something like a Pro-Line Road Rage T (shown), and you'll reduce rotating mass. You'll get faster acceleration and higher wheel rpm, and you'll reduce rolling resistance, thanks to the road-friendly tread pattern. If you still want to play in the dirt, consider something like the Dirt Works tires; they'll still be faster than the Dick Cepke jobs on pavement, with plenty of off-road grip. But the smaller diameter of the performance tires will reduce the truck's final drive ratio, so you may want to ...

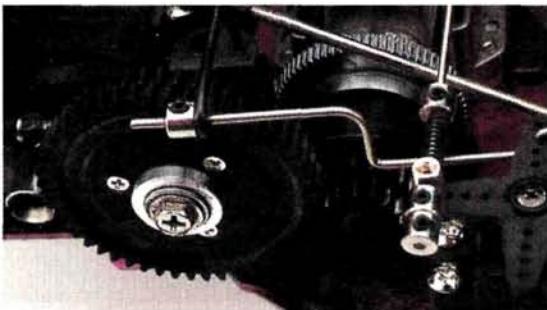


## Step 5. Gear up

### SPEED INCREASE TO 10MPH

Does your RTR accelerate quickly to top speed and seem as if the engine has power to make it go faster, but it winds out too quickly? Then you can probably gear it up safely. If you installed smaller-diameter tires, you'll definitely want to gear up to compensate for the reduced distance the truck travels per revolution of the wheel.

There are two ways to lower your truck's gear ratio (for a "higher" gear; I know, it's confusing). You can either install a clutch bell with more teeth, or a spur gear with fewer teeth. Try going up 1 tooth on the clutch bell, or down 3 teeth on the spur. Why the difference? Let's look at some ratios.



- Stock ratio: 86-tooth spur gear ÷ 17-tooth clutch bell = 5.06:1 ratio (that means the clutch bell must turn 5.06 revolutions to turn the spur gear once).
- Ratio with 1 tooth added to the clutch bell: 86-tooth spur gear ÷ 18-tooth clutch bell = 4.78:1 ratio.
- Ratio with 1 tooth removed from the spur gear: 85-tooth spur gear ÷ 17-tooth clutch bell = 5:1 ratio.

As the numbers show, the 1-tooth change to the clutch bell has a much more dramatic effect on the gear ratio. The closer the gear ratio gets to 1:1, the faster your vehicle will go—as long as the engine has the horsepower to turn the gears. Think of it as the gears on a bicycle. Just shifting your bike into 10th gear doesn't mean you'll go faster; if your legs aren't strong enough to crank the pedals, you'll actually go more slowly, and so will your car if you over-gear it (and the engine will overheat, too).

## Step 6. Use fuel with a higher nitro content

### SPEED INCREASE 3 TO 4MPH

We won't lie to you: more nitro will make your RTR run faster. It will also increase engine heating, and "hotter" and "faster" add up to "worn out quicker." It's your money. Our advice? Don't use more than 20-percent nitro, monitor the engine temperature carefully, and let the engine cool between tanks.



## Step 7. Lose the pull-starter?

### SPEED INCREASE Negligible

We added this because we knew we'd get letters and emails saying "You forgot to add 'remove the pull-starter,'" if we left it out. For fun-running, it's not worth it. Stick with convenience. For the record, we tested a stock RC10GT RTR equipped

with its fully broken in pull-start AE .15. After multiple passes in front of the radar gun, we recorded the acceleration and top-speed data.

We then let the truck cool and refitted the engine with a non-pull-start crank and backplate. Using the same fuel and driver, we again ran the truck and recorded the GT's test data. When we compared the two data charts, we discovered that the truck's acceleration had marginally increased from the pull-start configuration to the non-pull-start setup; however, the top-end speed remained the same. The benefits of non-pull-starts are on the track where quicker acceleration keeps you ahead of the next guy.



## Fast Driving Do's & Don'ts



**DON'T** keep the throttle buried. Once you hear your engine reach peak rpm, you can hold it there safely for 2 or 3 seconds—that's it. If you hot-lap the parking lot wide open, the engine will overheat, over-rev and stop really well when the connecting rod comes apart like a piñata on Mark McGwire's birthday.

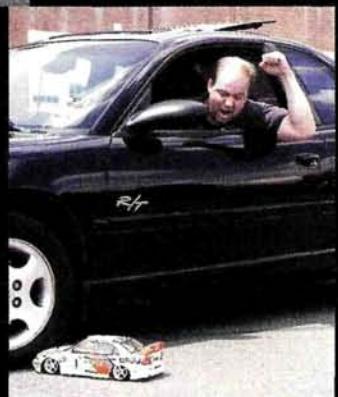


**DO** keep radio range in mind. A fast nitro car can get farther away than you realize, quicker than you think. That leads to a runaway car, and that never ends pretty. Most runaways occur when the driver decides to see how far the car can go before it runs out of radio range; this is like determining your ability to fly by jumping out of a window. Always range-test with the engine off, and then consider two-thirds that distance to be the farthest the car can go safely.

**DON'T** forget to stop. Leave yourself a safe buffer zone for slowing and stopping. If you run out of room before you run out of speed, a sidewalk will stop your car in a hurry. Bring a dustpan.



**DO** keep the moving car away from yourself, your buddies and your pets. It's simple physics; mass x velocity = ouch. Stay out of the way.



**DON'T** drive your car in the street. Yes, your car could get run over, but much more important, someone may swerve to avoid your car and damage their own vehicle or someone's property. Real-car bodywork is much more expensive than Lexan, and someone could get hurt. Don't do it. ■

## SOURCE GUIDE

**DIRT WORKS**  
Distributed by Pro-Line.

**MEGATECH**  
8300 Tonnelle Ave., North Bergen, NJ 07047; (201) 662-2800;  
[www.megatechrc.com](http://www.megatechrc.com); [info@ahcmegatech.com](mailto:info@ahcmegatech.com).

**PRO-LINE/JACO**  
P.O. Box 456, Beaumont, CA 92223; (909) 849-9781;  
[www.pro-lineracing.com](http://www.pro-lineracing.com).



# ULTIMATE

Traxxas

# Stampede

BY KEVIN HETMANSKI

It's hard to believe the Traxxas Stampede has been available for more than six years yet is still considered by many to be the best-performing 2WD monster truck. Heck, we even picked it as "Best Overall" in our 2WD Sport Truck Shootout (March 2001). The Stampede's impressive stock performance, general popularity and aftermarket support all inspired me to build the "Ultimate" version you see here, but the big kicker was Thunder Tech's amazing graphite chassis conversion. How could I resist building up a tricked-out truck around such a beautiful frame?



## ULTIMATE ELECTRONICS

### TEAM ORION

■ Team Orion Chrome modified 14-double motor—part no. 23104, \$59.99.

■ Team Orion V-Max Sport Pack 2400-10140, \$53.99.

Team Orion Inc., 22601 La Palma, Ste. 103, Yorba Linda, CA 92877; (714) 694-2812; [www.team-orion.com](http://www.team-orion.com).

### JR RACING

■ JR Racing XR3 FM transmitter—JRP314127, \$179.95.

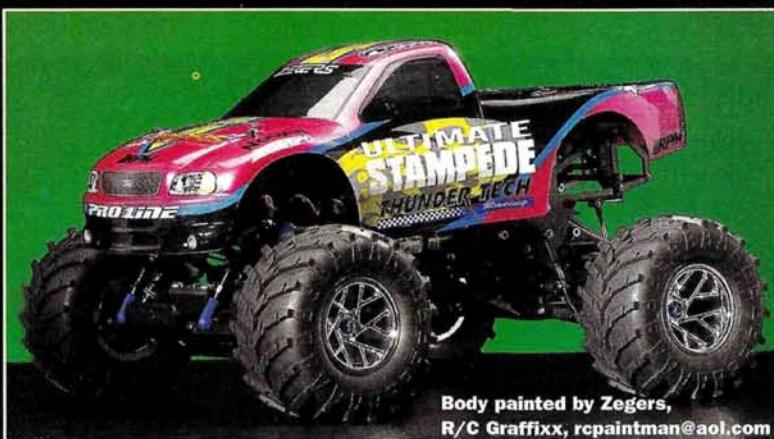
■ JR Racing Z550 servo—JRPZ550, \$24.95.

*JR Racing, distributed by Horizon Hobby, 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; [www.horizonhobby.com](http://www.horizonhobby.com).*

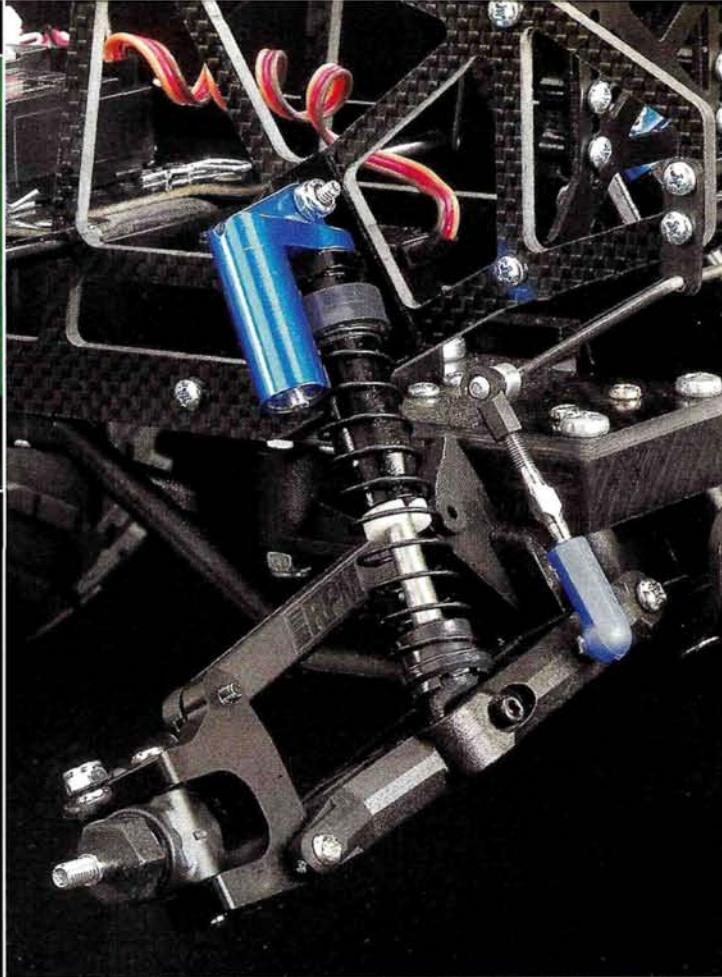
### NOVAK

■ Novak Super Rooster—1860, \$120.99.

*Novak Electronics Inc., 18910 Teller Ave., Irvine, CA 92612; (949) 833-8873; [www.teamnovak.com](http://www.teamnovak.com).*



Body painted by Zegers,  
R/C Graffixx, [rcpaintman@aol.com](mailto:rcpaintman@aol.com)

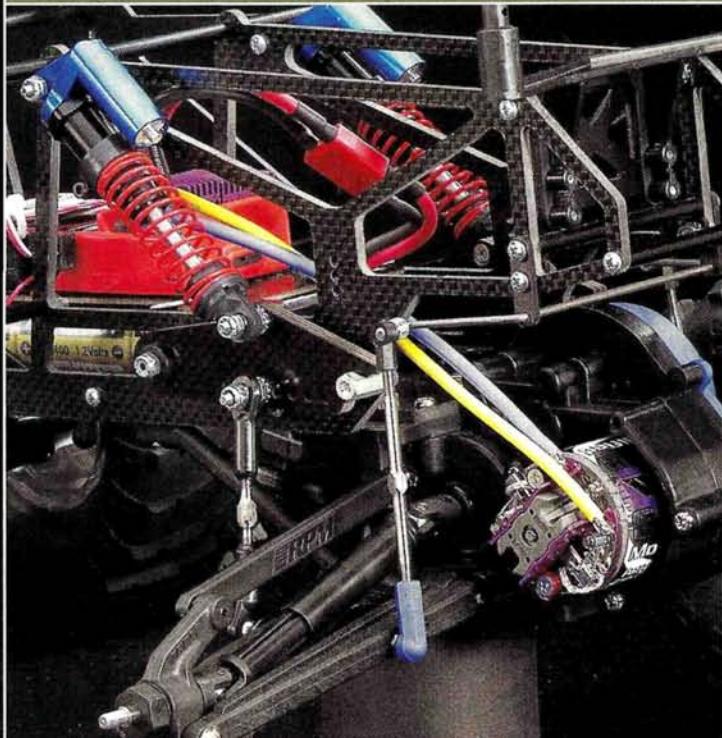


Above: Progressive Suspension shocks replace the stock plastic units that came with the truck. The piggybacks reservoirs really smooth out the ride, and damping can be adjusted from outside the shock. Thunder Tech Racing front and rear swaybars keep the truck flat in the corners. RPM's bomb-proof upper links increase overall durability, and Thunder Tech extended hub carriers allow shallow-offset rear rims to be used on the front of the Stampede.

Below: Check out the rear end on this ride! The cantilevered-suspension design increases the wheel travel, and an Orion Chrome modified 14-double motor gets this baby moving. I replaced the stock gear differential with a ball-type unit, and I also swapped the stock plastic outdrives for heavy-duty Traxxas steel pieces.



Thunder Tech Racing dramatically changed the look of the Stampede with the sweet carbon-fiber Outlaw chassis and aluminum Diamondback roll cage. This chassis replaces the stock unit, and the Diamondback kit requires slight modifications to the front and rear shock towers to make it fit. The roll cage can be attached to the Outlaw chassis as well as the stock molded chassis.

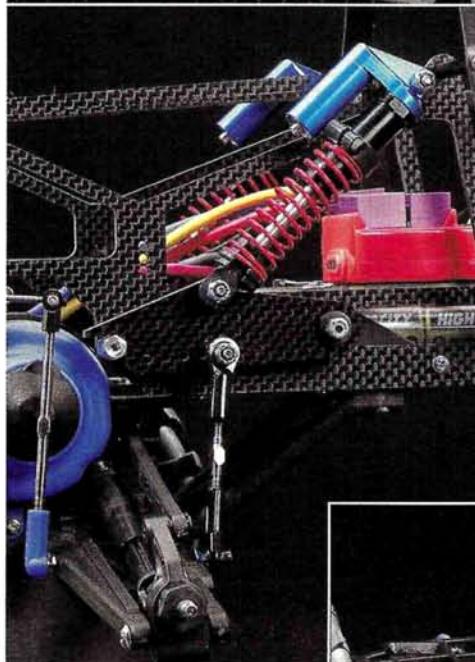




**Above:** the receiver and ESC are mounted in the chassis on the battery hold-down. Novak's Super Rooster ESC handles the voltage while a JR Racing R133 receiver picks up the signals from the XR3 FM transmitter.

**Left:** Note the additional holes for the cantilever-to-arm linkage. Moving the link away from the cantilever pivot gives the system more leverage on the shock for a "softer" suspension.

**Below:** this Ultimate Stampede's steering is now controlled by a ball-bearing-supported bellcrank steering system. Pro-Line Masher 2000 tires mounted on RPM Slingshot chrome wheels give the truck great traction and more ground clearance.



## PERFORMANCE

With such a beautiful, macked-out truck as the Ultimate Stampede charged up and waiting for action, I couldn't get to the local EMX track fast enough (although the state trooper who pulled me over argued otherwise). After weasling my way out of the ticket, ("Officer, I really, really have to go to the bathroom"), I rolled onto the track in a cloud of dust, yanked the Stampede out of the bed of my truck, flipped the switch and hit the dirt.

Twin roosts jettisoned from the rear wheels as it hunkered down on the rear suspension and dug in. A stock Stampede is impressively stable, but my Ultimate version felt like a Triple-XT as it carved around the paved berms and tore down the long straights. Up and over the track's double-doubles, the Stampede launched with its nose tilted up just slightly and touched down with the pillow "wuuuhhh" of a

T-Maxx. In addition to soaking up jump landings, the combination of Progressive Shocks and cantilevered suspension gave the truck incredible bump-absorption capability. While traversing the rocks and roots in the woods behind the track, the Stampede's suspension arms pumped up and down as if they were sending semaphore signals, but the chassis cruised through just hovering over the rough stuff.

I've built and driven a lot of "project" trucks, but the Ultimate Stampede is my new favorite; it performs even better than it looks, and it looks mighty good. ■

## SHOPPING CART

### ASSOCIATED

- Truck front racing spring (black)—part no. 7426, \$2.50.
- Truck rear racing spring (red)—7436, \$2.50. Associated Electrics, 3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; [www.rc10.com](http://www.rc10.com); [www.teamassociated.com](http://www.teamassociated.com).

### GS RACING

- Aluminum flanged locknuts—GSN00230BL, \$5.49.
- Aluminum cone washer—GSL00130BL, \$4.49.
- Nylon servo-saver—GSS00820BL, \$6.49. GS Racing; distributed by Horizon Hobby, 4105 Fieldstone Rd., Champaign, IL 61822; (217) 355-9511; [www.horizonhobby.com](http://www.horizonhobby.com).

### PROGRESSIVE SUSPENSION

- Shock set w/blue reservoir (F/R)—EDC-2003BL/EDC-2001BL, \$76.50/pair. Progressive Suspension, 11129 G Ave., Hesperia, CA 92345; (760) 948-4012; [www.progressivesuspension.com](http://www.progressivesuspension.com).

## SHOPPING CART

### PRO-LINE

- Masher 2000 tires—1074-00, \$18.50/pair.
- Ford F-150 for the Traxxas Stampede—3083-00, \$23/pair. Pro-Line/Jaco, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; [www.pro-lineracing.com](http://www.pro-lineracing.com).

### RPM

- Neon blue gear cover for Traxxas electric Rustler and Stampede—80405, \$5.95.
- Bearing carriers for Traxxas electric Rustler and Stampede (F/R)—80372/80382, \$8.95 ea.
- Heavy-duty camber links for Traxxas electric Rustler and Stampede—81262, \$5.95.
- Heavy-duty rod ends (4-40-yellow)—73377, \$4.95/12.
- Slingshot chrome rear truck wheels for Traxxas nitro trucks—81893, \$9.95. RPM R/C Products, 14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366; [www.rpmrcproducts.com](http://www.rpmrcproducts.com).

### THUNDER TECH RACING

- Outlaw chassis kit—\$125.
- Diamondback cage kit—\$159.95.
- Rear cantilever kit—\$45.
- Cantilever ball bearing kit—\$40.
- Diamondback swaybar kit (F/R)—\$12.50 ea.
- Extenda-blocks—\$40.
- Extenda-block steering links (Outlaw chassis)—\$6.50. Thunder Tech Racing, 25637 Parkside Dr., Channahon, IL 60410; (815) 467-0621; [www.thundertechracing.com](http://www.thundertechracing.com).

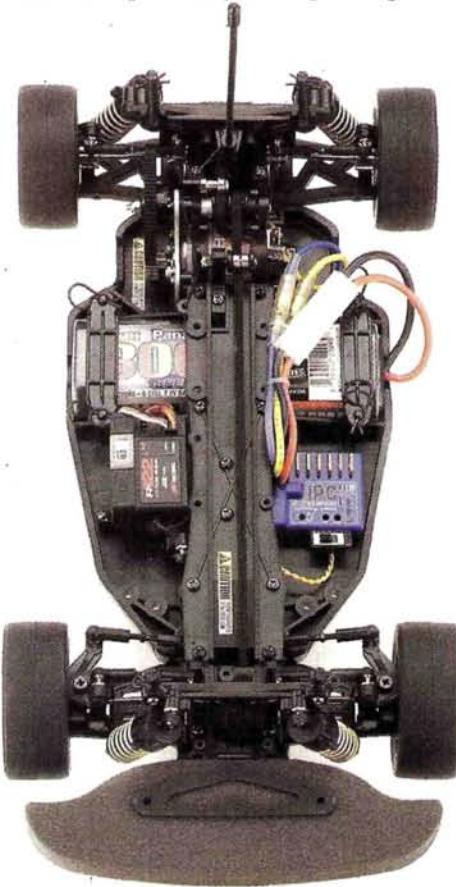
### TRAXXAS

- Ball differential Pro ball bearing—2520, \$60.
- Hardened-steel differential output yokes, (w/U-joints)—4628X, \$19.50/pair. Traxxas Corp., 12150 Shiloh Rd., #120, Dallas, TX 75228; (972) 613-3300; [www.traxxas.com](http://www.traxxas.com).

# Tamiya TA04S Corvette C5-R

by Greg Vogel

Tamiya has added some new features to its relatively new TA04 platform and has boxed it up as an all-new kit. The TA04S Sport featured here has the same dual-belt drive train, long, rigid suspension arm with oil-damped shocks at each corner, a sturdy ABS/polycarbonate tub-type lower chassis that accepts both stick and side-by-side packs and an aluminum motor plate like the one on the standard TA04. But with the "S" added to the end of its name, it gets the addition of a full set of ball bearings for the driveline, including the belt tensioner. Tamiya even throws in four bearings for the steering to make it ultra-smooth and bind-free. With the "S," you also get a full set of adjustable turnbuckles with an adjusting wrench for easy camber and toe changes. The kit does not include a 540-type motor and mechanical speed control as on other TA04 kits, but it does include a painted body. Tamiya is the first company to include a painted body in an unassembled kit, and this is great for enthusiasts who wants to build their own cars but don't have the skills of a Van Gogh or an O'Keeffe when it comes to painting the body shell. The Corvette C5-R body comes cut out and partially decaled, with predrilled holes and a sheet of decals to complete the job of replicating the full-size racecar.



## REQUIRED ACCESSORIES

- 2-channel radio with receiver.
- Steering servo.
- Electronic speed control.
- 6-cell battery pack.
- Motor.
- Battery charger.
- Glue.



**LENGTH** 14.25 in. (361mm)  
**WHEELBASE** 10.14 in. (257.6mm)  
**WIDTH** 7.39 in. (187.5mm)  
**WEIGHT** 49.35 oz. (1,399g)

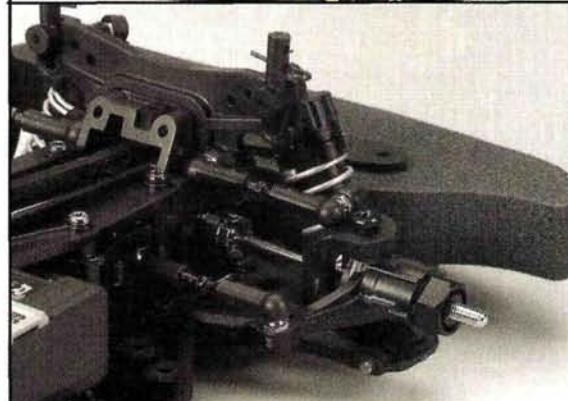
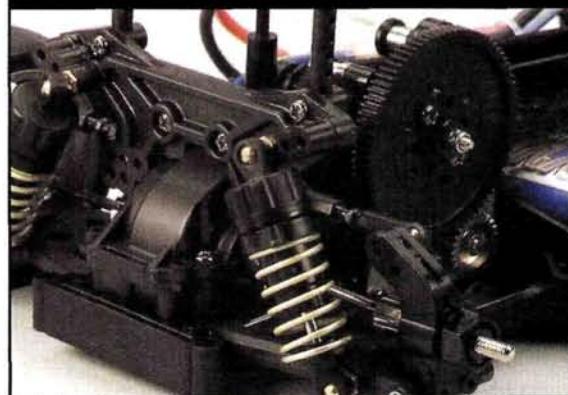


## PERFORMANCE

I installed a Trinity Monsters of Touring motor and a DuraTrax 3000mAh battery along with an LRP IPC ESC and JR radio gear. This was the right combination of electronics for a fun day in the parking lot. Thanks to the efficient drive train and Trinity power, the car accelerates quickly. Its handling was as good as I expected with the hard-compound slicks and soft inserts. It steered well, but when I entered the corner with too much speed, the car lost traction and the rear came right around. However, I got used to the car's characteristics and was able to understeer through the corners. This actually added a ton of excitement to the test. ■

## FEATURES

- Full ball-bearing set.
- Turnbuckle linkages.
- Painted, cut and decaled body.
- Ball-bearing belt tensioner and guide.
- Foam bumper.
- Plastic-body, oil-filled shocks.



LRP by George M. Gonzalez

## Quantum Competition

If you're a racer, you're probably familiar with LRP's national- and world-championship-winning ESCs, and you might already have an IPC V7.1 or an IPC SR racing ESC taped to the chassis of your buggy or truck. Well, LRP has big news for racers who have been looking for a smaller ESC that can handle both stock and modified applications and yet fit into tight places such as your  $\frac{1}{2}$ -scale pan car or less than roomy touring car. Enter the Quantum Competition ESC—LRP's first programmable mini ESC. Want to know how it works? Keep reading.

### FEATURES

**Digital Engine Management System (DEMS):** I guess they call electric motors "engines" in Germany, where the Quantum is manufactured. The Quantum features three, easy-to-program modes that allow you to adjust how the motor's power is distributed to match your driving style and track conditions. The three modes are Punch Control, Initial Brake and Automatic brake (more on these later).

**Push-button operation.** The Quantum is easy to install, and it's equally easy to program.

**Automatic start.** This function actually shortens the ESC's response time to throttle input by altering the deadband between the minimum-drive and full-throttle positions.

**High-frequency operation.** The Quantum switches at a maximum of 3140Hz for super-smooth operation when using low-mod motors on slippery track surfaces. You can lower the ESC's switching speed almost to a point at which it feels like an on/off switch (perfect for stock racing) by adjusting the Punch Control mode.

**Super-shielded case.** The Quantum uses a lightweight Lexan case that's sprayed on the inside with a special metallic coating that, according to LRP, reduces interference.

**4-cell ready.** The Quantum can be used in 4-cell applications without the need for a receiver pack.

**External solder points.** The Quantum comes ready to install with 13-gauge silicone-insulated wire soldered to the terminals. Because the solder points are external, you can replace the wire at some future point without having to open up the ESC, which would void the warranty.

### TESTING

The Quantum has a push-button setup procedure with an LED "confirmation" system to store the neutral, full throttle and

maximum brake commands from your transmitter. After holding the setup button for 3 seconds to get into the setup mode, you hold the trigger at each position (neutral, full throttle and maximum brake) and press the setup button to confirm each setting.

Holding the mode button down for 3 seconds accesses the programming modes, the first of which is "Punch Control." This mode allows you to adjust the ESC's drive frequency to one of five values: "1" represents the highest frequency setting and "5" represents the lowest.

Pressing the mode button a second time takes you to the "Initial Brake" mode, which allows you to adjust the amount of initial braking power in six values. Value zero provides the most linear braking, and value 5 provides the most progressive braking.

Pressing the mode button a third time takes you to the third and final mode—"Automatic Brake." Automatic Brake is LRP's version of a drag brake. You can adjust how much braking you will have when the throttle trigger is returned to neutral. A value of zero turns Automatic Brake off, and the drag braking increases

#### Likes

- Its tiny size makes the Quantum easy to install on any chassis.
- Easy-to-access performance adjustments noticeably affect throttle feel.
- Includes nice LRP decals—very important!

#### Dislikes

- Like ESCs with similar features, the Quantum is expensive (about \$270).

#### MANUFACTURER'S SPECIFICATIONS

Product:	LRP Quantum Competition ESC
Part no.:	LRP 8082
Input voltage:	4.8 to 8.4 volts (4 to 7 cells)
Internal resistance:	0.00045 ohm
Momentary load (1 sec.):	.235 amps
Brief load (30 sec.):	.120 amps
Continuous load (5 min.):	.80 amps
Motor limit:	.5-turn
Receiver voltage:	.5.8 volts
Frequency:	.3140Hz optimum
Weight (without wires):	17.5g
Case size:	.28.3x25.4x14.4mm
Wire size:	.13AWG

when  
values 1  
through 5 are  
selected.

The Quantum comes with a factory default program that LRP calls the "Works Settings." Punch Control is set at value 2, Initial Brake is set at value 2 and the Automatic Brake is set to value zero, which means that this particular function is disabled. This is an ideal profile for a mod-motor application. I decided to leave the Quantum at the factory-default setting, even though my car was equipped with a 27-turn ROAR stock motor. The throttle response was incredibly smooth—almost too smooth. It made the car feel sluggish. I also noticed that the car felt way undergeared, and most of the cars on the track fed me taillights. I headed back to the pits and set the Punch Control to value 5 (maximum punch), but I left the other settings as they were. I couldn't believe the difference; my Pro 3 was far more responsive to throttle input, and I was able to keep it in the front row for a change.

I next decided to try the Quantum with a modified motor. I strapped an 8-turn double to the motor mount but left the car geared for stock racing to see whether I could cook the ESC. The car ran for about 3 minutes before the batteries went flat. As I approached it, I could feel the heat coming from beneath the body; in fact, the motor and battery pack were so hot that the chassis had started to soften. I was surprised that the wires soldered to the motor or batteries didn't melt! The ESC, on the other hand, was a little hot but nothing out of the ordinary.

### THE VERDICT

The Quantum ESC is incredibly small, light and easy to set up and program, and it performs very well. It should sell for around \$20 more than LRP's IPC V7.1. That isn't that much more when you consider that the Quantum can be programmed to work well in both stock and mod applications and that it represents the latest in miniature ESC technology. ■

### SOURCE GUIDE

LRP

Distributed by Associated Electrics  
3585 Cadillac Ave., Costa Mesa, CA 92626-1403; (714) 850-9342; [www.rc10.com](http://www.rc10.com); [www.teamassociated.com](http://www.teamassociated.com).

## Airtronics by Peter Vieira

# Blue Blazer

**W**ell, I lust after exotic, high-end computer radios, but most of us in the real world use inexpensive AM units. And speaking as a guy who has plenty of experience with both types, an AM system is all most of us really need. The least expensive models are usually outgrown quickly, but a solid one-step-up AM system with endpoint adjustments and dual-rate steering will cover just about all driving needs.

Airtronics' Blazer is just such a system, and thanks to its distinctive blue color, it will probably get you more attention at the track or parking lot than a ho-hum black radio ever would, no matter how many features it may have. My Blue Blazer certainly drew attention, and I'm pleased to say it's a high-quality system that not only can get you started in RC but will also grow with you as you gain experience.

### FEATURES

- **Steering endpoint adjustments.** Better known as steering EPA, this allows you to adjust how far the steering servo's output arm travels to the left and right independently without altering the servo's neutral position.

- **Throttle endpoint adjustments.** Throttle EPA works the same as it does for the steering and is a boon to nitro-power fans, since it allows the amount of forward throttle to be set independently of the brake travel, and it does not affect the neutral position. Electric cars also benefit; throttle EPA can be used to quickly alter the maximum brake strength of an ESC.

- **Steering and throttle trims.** As I'm sure you all know, the trim knobs adjust the neutral position of the servo.

- **Steering dual rate.** After you set the neutral setting of the steering servo and define its maximum travel positions with the EPA knobs, you can use the steering dual-rate function to reduce the amount of left and right steering throw simultaneously—without affecting the neutral and EPA settings. This makes it easy to give your car just enough steering to get around the track.

- **Z-connectors.** Airtronics used to be the odd man out in servo harness wiring, but it got in line with the rest of the RC world a few years ago with its move to Z-connectors, which are configured with a center positive wire and can be plugged into all receivers. Likewise, the Blazer's included receiver accepts all current servos regardless of brand (although you'll have to snip the

"fin" off Futaba plugs).

- **92723 receiver.** The Blazer's receiver measures 1.88x1.2x0.8 inches—not too small, but not too big, either. It is BEC-equipped (battery eliminator circuit) for use with mechanical speed controls and is molded in blue to match the Z-connectors it accepts.

### Likes

- Cobalt-blue case looks great and is truly something different.
- Simple, analog adjustment of critical servo-setup parameters.

### Dislikes

- White wheel gets instantly filthy.
- Steering and throttle EPA adjustments require a tool.

- **LED battery meter.** Three LEDs keep you informed of your batteries' condition: three lit is best; two lit means it's time to start thinking about a recharge; and a single LED means the radio has just enough power to tell you the batteries are too depleted to operate your car safely. Especially a gas car!

- **Charging jack.** Rechargeable batteries (or any type of battery) and a charger are not supplied, but at least the jack is there!

- **94102 servos.** The Blazer includes a pair of these "Precision Heavy Duty Standard" servos, which Airtronics claims are good for 50 oz.-in. of torque with a transit time of 0.22 second at 4.8 volts. I can't confirm those specs, but I can confirm that the servos are strong enough for all  $\frac{1}{10}$  play, and although not ideal for racing, you could get away with them in a touring car or a 2WD buggy.

### TESTING

Before I even switched the Blazer on, I found something to like: the roomy handle. You won't get the dreaded pinkie-pinch, and the long grip gives the bottom-mounted battery box a pendulum effect that lends the Blazer a nicely balanced feel. I was less



impressed by the white wheel; I like its grippy texture, but the white rubber makes the transmitter look toy-like, and it looks worse as it gets covered with greasy fingerprints. I swapped mine for the black version used on the standard Blazer, and it looks a lot cooler, in my opinion.

Functionally, the Blazer is a little less convenient to adjust than it could be; the trim- and dual-rate knobs are easy enough to twist, but the EPA dials must be turned with a tiny plastic screwdriver (included) after you've slid off a clear plastic cover to reveal the dials. If you frequently make radio tweaks from the drivers' stand, be sure to keep the screwdriver handy.

Now for the practical testing. I installed the Blazer system in a DuraTrax Maximum ST. An aluminum chassis combined with the vibration of a nitro engine is always a grueling test for an AM system, but the Blazer performed reliably, and all the trimming functions worked as they are supposed to. The popular (but ultimately meaningless) "How far away can the car go" test went well, despite the presence of electromagnetically obtrusive parked cars, chainlink fencing and power lines. By the time the Blazer started to get hits, the truck was so far away that I couldn't tell in which direction it was heading.

After making the long haul back into reasonable radio range and playing with the big-tire truck for a few tanks, it occurred to me that I never gave any thought to the 94102 servos. I had no trouble steering, throttling and braking the truck effectively, so it was easy to forget about them and concentrate on having fun—which is what I did.

### THE VERDICT

The Blazer, whether in original black or the newfangled blue version, is a reliable AM system with the essential features experienced RC enthusiasts and racers need. The price is right (about \$100), the ergonomics are good and the use of Z-connectors ensures plug-in compatibility with other brands of electronic gear down the road. It's a solid system, plain and simple. ■

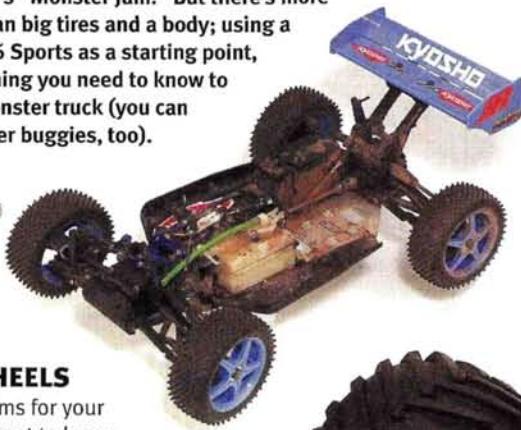
### SOURCE GUIDE

**AIRTRONICS**  
1185 Stanford Ct., Anaheim, CA 92805; (714) 978-1895; fax (714) 978-1540;  
[www.airtronics.net](http://www.airtronics.net)

# Convert your 1/8-scale nitro buggy into a monster truck

**D**o you have an 1/8-scale buggy that is no longer a competitive racer? Or maybe a buggy you bought just for play but are ready to modify for a change of pace? Here's my advice: monsterize it! Adding big monster-truck tires and a tough-looking flatbed body will transform your buggy from a 4-wheel spaceship-looking thing into a something from TNN's "Monster Jam." But there's more to the conversion than big tires and a body; using a Kyosho Inferno MP-6 Sports as a starting point, I'll show you everything you need to know to go from buggy to monster truck (you can use my tips with other buggies, too).

**before**



## TIRES AND WHEELS

Before you choose rims for your new truck, it's important to know the size of your buggy's wheel hexes. The Kyosho MP-6 and earlier Kyosho buggies have a large, 19mm drive hex; all other brands use 17mm hexes. The Kyosho Nitro USA-1 model has the only rim that fits the 19mm drive hexes, so that's the one I used for my project. For 17mm hexes, you can choose designs from OFNA or DuraTrax. Be aware that you may need to enlarge the axle opening of some wheels to fit certain trucks.

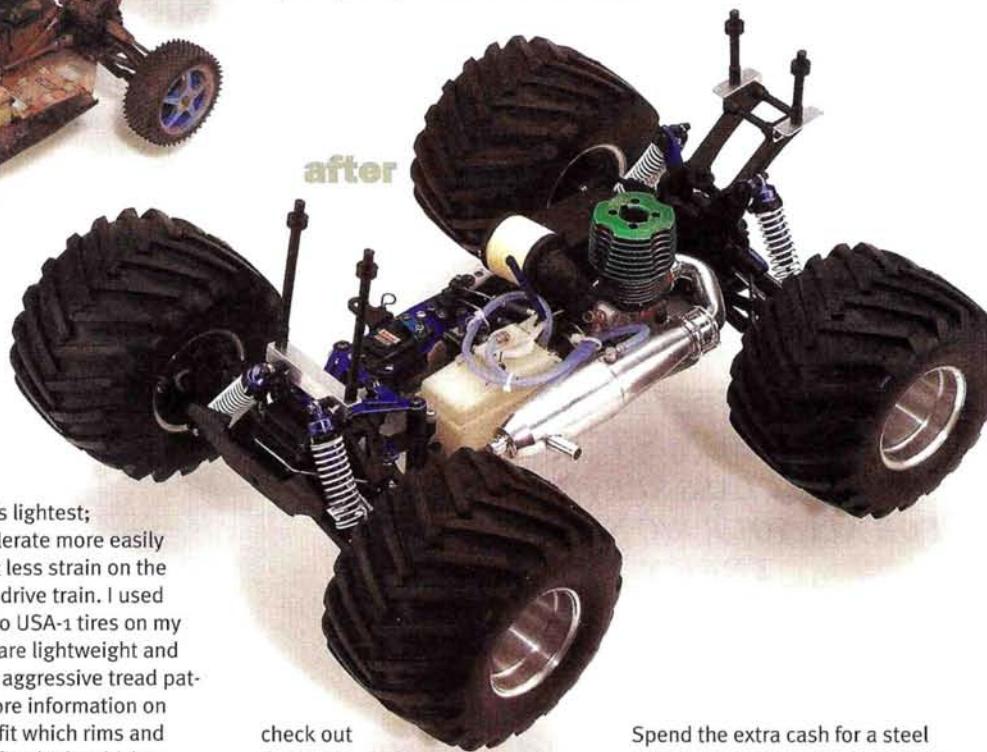
If you don't already have your heart set on a certain tire design, compare a few and go with

whichever is lightest; they'll accelerate more easily and will put less strain on the engine and drive train. I used Kyosho Nitro USA-1 tires on my truck; they are lightweight and have a very aggressive tread pattern. For more information on which tires fit which rims and which rims fit which vehicles,



Left: here's what I started this project with—a seriously abused Kyosho MP-6 Sport that still had dirt left on it after its last run. Right: my newly transformed ride. Nice!

**after**



check out  
the September  
2000 edition of *RC Car Action's*  
"4X4."

## GEAR RATIO

Larger tires dramatically raise the effective gear ratio of your buggy. Check your car's parts list to see whether the manufacturer offers optional spur gears and clutch bells for it. If it does, install the largest spur gear offered, and use the smallest clutch bell you can (just be sure the chassis' engine-mounting slots are long enough for the gears to mesh properly).

Spend the extra cash for a steel spur gear, if it is available for your car. I used an aftermarket Kyosho steel main gear for my MP-6.

## DIFFERENTIALS

All three differentials will also need some attention.

The goal is to slow down the diff movement to protect the diffs from heat and wear. If you have sealed differentials in your buggy, fill the center diff with the thickest diff fluid you can find; fill the front diff with 7,000WT and the rear with 10,000WT fluid. Mark the differentials just after you fill them.

**Heavy springs and thick shock oil keep the suspension in check. The swaybar minimizes body roll, so the tires stay in contact with the ground at all times. I installed the body mounts on the top of the wing mounts so that I'd be able to use shorter body posts. The shorter posts flex less than long posts and don't allow the body to move around as much as long posts do.**

# PUMPUP your engine

This system incorporates the Perry pumps & carbs. Over the past 20 years over 50,000 of these systems have been used successfully in model airplanes worldwide.

Kit for .12 & .15 engines \$84.95 +S/H

Kit for .21 engines \$89.95 +S/H



Included with the kit: 1-Vp-30 pump, 1-carb, 1-AMV® intercooler, 1-pump clamp, 1-allen wrench, 1-pressure fitting, 1-check valve, 1-thick walled tubing.

This system requires a 6-32 threaded hole be put into the crankcase of your engine and a pressure fitting installed. The pump is designed to operate on crankcase pulses.

**AVM intercooler manifold** \$24.95 +S/H

The AVM Intercooler intake manifold is computer designed and CNC-machined. The manifold was developed to accelerate incoming air fuel mixture and reduce temperature. This net result is less frustration associated with "hot restarts".

During testing there was over a 100 degree difference between the intake manifold and head temperature.



*The AVM Intercooler manifold is also available for non-pump application. Installation is simply placing the manifold between your carb and the engine block.*

If you purchase the pump/carb system from Conley Precision, we will drill and tap your engine crankcase for just \$20.

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Conley Precision Engines, Inc.  
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[www.perrypumps.com](http://www.perrypumps.com)

## 4x4

so that you remember which fluid belongs where. If your differentials are not sealed, use thick grease in them instead of silicone. The silicone will seep out of a non-sealed unit and create a big mess.

You can also try eliminating the center diff. Having no center differential cuts down on the truck's steering capabilities, but equal power will go to all four wheels at all times. Nuova Faor makes a differential by-pass unit for Mugen, Kyosho and Thunder Tiger cars. This unit is a direct replacement for the center diff and will ensure that the front and rear tires get equal power. I highly recommend it for a monster truck. You can also try a Torsen-style diff from Nuova Faor, Fioroni and OFNA. It works just like a regular differential, but when one end of the diff has pressure on it, the unit locks up. I just happened to have a Torsen diff from OFNA, so I installed it in my truck.

## BRAKING

Unless you run your truck on the Bonneville Salt Flats, braking is very important. If you use a standard servo, or something with a torque rating close to that, it's a good idea to upgrade

**Below: I chose a new Hitec HS-5645 digital servo to turn those big monster-truck wheels. The HS-5645 has a claimed torque output of 107 oz-in. at 4.8 volts, and it comes with this cool aluminum servo horn.**

**Right: on any 1/8-scale buggy, universal drive shafts (instead of dogbones) are good to have, and it's even better to have them on your monster truck, especially in the front. The truck's big wheels weigh a lot, and if it hits something while it's taking a turn, a dogbone might pop out and be lost forever; that won't happen with universals.**



to a good midrange servo with at least 70 oz-in. of torque. A Hitec 645MG servo pulled the reins on my monster. Another way to improve your truck's braking is to add an extra brake disc—an easy modification. Add the extra disc to the front end of the center diff. All you need is an extra brake disc and one brake pad.

## DRIVE SHAFTS

If your buggy is equipped with dogbones, replace them with universals. Dogbones work fine, but they have a tendency to pop out. Universal drive shafts prevent this from happening. Most companies offer universals for the vehicles they make. MIP and OFNA offer

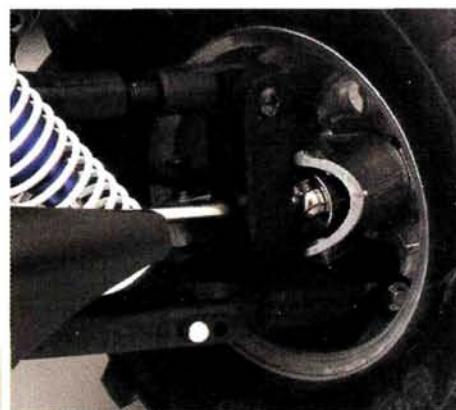
universals for just about any 1/8-scale buggy on the market. I used OFNA rebuildable CVAs on my converted truck.

## ENGINE

If you don't already have an engine in your buggy, go for a pull-start unit. A bump-start mill will work, but it's a pain to line up a monster truck on a starter box with four big tires in the way. A pull-start engine is just a lot more convenient. I used an old, non-pull-start Novarossi racing engine that I had retired from racing. It was just lying around, so in it went.

## SWAYBARS

A monster truck tends to have much more body roll than a buggy because the tall tires raise the chassis relative to the tires' contact patch, and this can cause the inside tires to unload during a turn. Swaybars reduce body roll and keep the tires firmly planted during high-speed turns, but they limit the independent suspension travel needed to climb over obstacles—not a problem, as swaybars can be quickly disconnected. Aftermarket swaybars from Kyosho kept my truck in check.



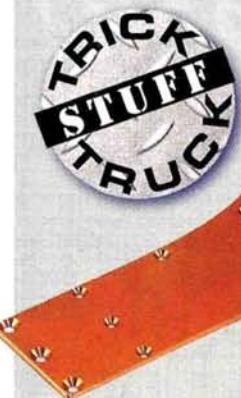
## STEERING

Most diehard 1/8-scale racers probably already have a high-torque steering servo for their buggy; good, because they'll need it. If you don't have a high-torque servo, I strongly suggest you invest in one. Monster-truck tires are not easy to turn, especially at high speeds. A servo with 100 oz-in. of torque will do, but more is always better. To make the most of your servo, it must receive a full 6 volts from a 5-cell Ni-Cd receiver pack or 4 dry-cell alkalines. Never use only 4 Ni-Cds; you'll have only 4.8 volts, and servo performance will suffer. I used a new Hitec HS5645MG Digital servo to turn the front tires on my monster. Its claimed torque output is 106.9 oz-in. at 4.8 volts. Good enough for me!

## DIRT SHIELDS

Most 1/8-scale buggies are equipped with plastic dirt shields. When you mount the large mon-

## HG Ultimate Chassis for the Traxxas Nitro Rustler



**HG** now produces a

Nitro Rustler. It is CNC-machined out of strong 6061 T-6 aluminum and anodized orange for a different look. The chassis edges and holes are all chamfered, and its shape is definitely a change of pace.

Alloy Ultimate Chassis for Nitro Rustler—  
3050, \$59.95.

### Hardcore body mount

Traxxas Maxx truck owners know that the body mounts can be a weak link. One violent roll and they are gone. Hardcore Racing has these sweet, new, direct-replacement aluminum mounts of a unique design. Instead of standard body clips, plastic quick-clips hold the body on the truck. No more lost body clips! The small clip is easy to use and will not fall off, and four extra clips are included.

Available in blue, silver, green and purple.

**Hardcore Racing Maxx body mounts—  
HCR-00313 (front), \$42; HRC-00314  
(rear), \$44.**



ster truck tires, they will interfere with the dirt shields. If you don't care about getting dirt inside your chassis, remove the dirt shields. If you prefer the added protection, just trim the ends of the stock shields until the tires don't touch them. I would have had to remove too much material on my MP-6 dirt shields to achieve clearance, so I left them off.

### BODY MOUNTS

On  $\frac{1}{8}$ -scale buggies, only two body mounts hold the body on the car, and they are very close to the chassis. Monster-truck bodies ride high on buggy chassis to clear the tires and to provide that monster-truck look. You will probably have to make your own body mounts for your newly converted truck. The easiest way to make these is to attach a  $\frac{1}{2} \times \frac{1}{2}$ -inch-piece of aluminum angle to the top of the shock towers; or, use the rear wing mounts, as I did. Once that is done, you can drill holes in the aluminum and use aftermarket body mounts such as those offered by Parma.

### PERFORMANCE

Before beating on my newly converted monster truck, I drove it around at slow speed on the dirt track, making tight turns to warm up the engine and break in the center diff. Once everything was OK, I mashed the throttle and had some fun. The center diff certainly did its job and prevented the front wheels from spinning when I opened the carb on the big engine. It was exciting to pitch the truck through turns at full power; all four tires were pulling it through, and I was able to get a little of that cool 4-wheel drift action going on. The

gearing was a little on the high side, so I will gear it down a little to give it better punch off the line. The Hitec servo had a commanding hold on the front wheels and kept them pointed in the right direction. Braking wasn't as crisp as I had hoped, so I will add another disc to the center diff to help slow the big truck down.

### THAT'S IT

As you can see, it is not difficult to convert an  $\frac{1}{8}$ -scale buggy into a monster truck; it just takes a little beefing up and tweaking here and there. You will definitely have more fun with your new ride, and it's sure to turn some heads. ■

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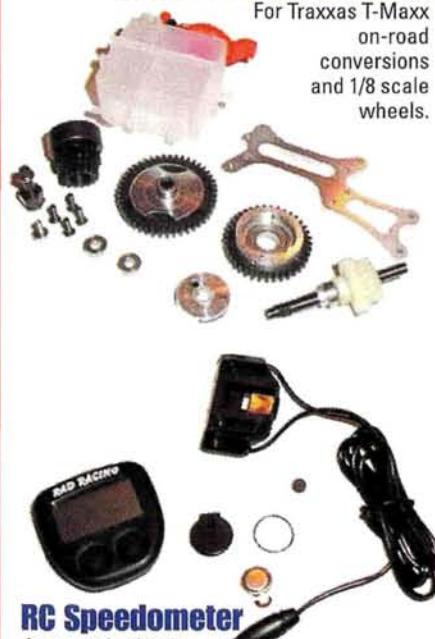
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# Doing it right: how to lock a crankshaft

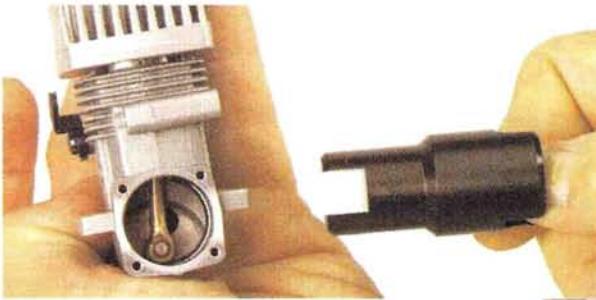
**W**hen assembling a clutch on an engine crankshaft, it's important to get the thing on tightly, and that requires that you lock the crankshaft. If you don't, your car will be "pooping" clutch parts before the first lap is completed. Just as important is getting the thing off come maintenance time. The most important of all, however, is doing both tasks without hurting your precious engine.

I've seen guys shred flywheels using tools such as water-pump pliers and vise grips. Even worse is the internal damage that can ensue when a frustrated modeler resorts to putting screwdrivers in exhaust ports or sawn-off half shafts into intake ports to lock off the engine. I know .... I know there are piston-locking tools available. Sorry; I don't like these things either. The wristpin and the small bronze bushing it rides in within the rod's smaller upper end were never designed to take the loads that can be imposed by torquing down a clutch bolt

or removing a stubborn one that has been put on with a bit too much thread-locker.

Dynamite's new Crankshaft Locking Tool is one of the best solutions to this procedure I've seen yet. Unlike most other crankshaft locking tools that lock the crank by holding the piston at bottom dead center by pressing the piston down through the glow-plug opening, this tool locks off the crankshaft directly at the lower end. It does this by capturing the crankpin and the connecting rod's lower (and larger) end after you have removed the engine's backplate. Yes,

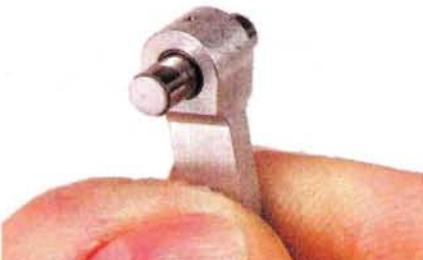
you do have to do some extra work by removing the backplate, but it's more than worth it. You're doing the procedure the right way the first time, and you can use the needed torque force without fear of damaging the engine's internal



**Above:** Dynamite's Crankshaft Locking Tool is made of Delrin that won't mar the internal parts with which it comes into contact. The conrod and crankpin are captured in the slot to lock off the crankshaft for clutch installation and removal. The smaller end is for .12 to .16 engines, and the larger one is for .21s.

**Right:** with the tool inserted and hand-held in place, clutch-locknut torque-down and removal are easy.

**Below:** model engines produce very little torque, so the small, upper wristpin end of the conrod and its thin bronze bushing are not designed to handle the torque load presented by clutch installation (hence my dislike of the piston lock-off method).



parts. This means you only have to do it once to get it right and not again in the pits because everything loosened during a heat.

To use Dynamite's tool, remove the engine's backplate, then install the tool over the conrod (one end fits .12 engines; the other handles .21 mills). It's that simple. And here's the best part: your wristpin and conrod are protected against even superficial damage because the tool is machined of Delrin, which won't even scratch your engine's softer aluminum parts. Considering the investment you have in your nitro engine, at \$20, this tool is well worth it. ■

## TECH Q & A

**Q** I've heard that I should break in my engine by idling it for five tanks and that I shouldn't actually drive the car. That's what the guys at the track say; is it true?

**A** I've received letters and have seen considerable discussion in chat rooms regarding whether it's good or bad to break in an engine by idling it through the recommended break-in period. I'm not aware that any engine manufacturer recommends this type of break in, and I definitely do not recommend it either. As a very experienced American 2-stroke racing-engine designer once said, "Break them in fast, and they'll be fast. Break them in slow, and they'll be slow."

The inertial forces of an engine's internal moving parts increase exponentially as rpm increase. The inertial force being exerted by the parts of an engine spinning at 30,000rpm are immensely greater than those of the forces being exerted by the same parts idling at 3,000rpm. When a new engine goes to its top-end rpm for the very first time, its internal parts not only act a certain way in relation to one another for the first time, but they also change size and shape ever so slightly because of these extreme forces. The point is, you want these changes to take place during break-in, not after it, which is what would happen if you idled your way through break-in and then went to high rpm for the first time when running all out.

I've also heard of guys running a new engine very rich at idle for break-in. This could lead to a worn-out piston/sleeve fit right at the very beginning. The ABC piston/sleeve-type engines we run have a very tight piston-to-sleeve fit around top dead center when cold. This is because of the differing expansion rates of aluminum and brass when they're heated. This tight piston/sleeve fit when the engine is cold is such that the fit is actually optimal when the engine reaches running temperature. If you run the engine very rich at idle, it will never reach running temperature, and the piston/sleeve will remain too tight. If you do this for a long time, the too-cold, too-tight fit will prematurely wear the piston/sleeve fit around top dead center.

Break in your engine by running your car on a smooth, low-rolling-resistance surface without the body. Have the engine set at a rich but fast setting. Operate the throttle at all speeds, including full throttle. Going back and forth between midrange and full throttle pumps a lot of cooling fuel mixture through the engine and helps to prevent parts from overheating. If you can, do this on a cool, dry day. That's all there is to it!

Send your nitro-related letters to [Chrisc@airage.com](mailto:Chrisc@airage.com), or "Piston Power," *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA.

## SOURCE GUIDE

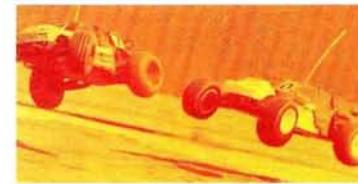
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**Mobile Miniature Speedway**, 5963 Highway 90, Theodore, Alabama 36582; Richard Sweetser, 866-653-6643 or 251-653-6643; email: hurricane.71@gateway.net



**Montgomery's Field of Dreams**, 5924 Ralston Way, Montgomery, Alabama 36116; Mike Westendorf, (334) 281-9432; email: mike\_westendorf@yahoo.com



**Oak Mtn R/C Raceway**, p.o. box 619, Columbiana, Alabama 35051; Matthew Gordon, (205) 669-6837; email: oakmtnrcraceway@hotmail.com



**Phenix Raceway & Hobby**, 2006 Opelik Rd., Phenix City, Alabama 36867; Chris Watson, (334) 298-9785; web: members.nbcn.com/PhenixHobby



**R/C Hi-Tech Raceway**, 3303 Meridian St., Huntsville, Alabama 35811; Rick Chambers, (205) 539-1347



**Spring Cove International Speedway**, 240 County Rd. 356, Florence, Alabama, 256-757-1562; email: rvines@hiway.net; web: www.springcovespeedway.com/SpringCove.htm



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**Hobby Town Raceway**, 13802 N. Scottsdale Rd., Scottsdale, Arizona, (602) 948-3946



**HobbyTown Mountain Raceway**, 1500 E. Cedar Ave., Cedar Hills Shopping Center, Flagstaff, Arizona 86004; Richard, (520) 214-9887



**HobbyTown Raceway**, 1102 E. 22nd St., Tucson, Arizona 85704, (520) 882-8888



**HobbyTown U.S.A.**, 5030 E. Ray Rd., Phoenix, Arizona 85044; Linda McFarland, (480) 598-5282



**R/C Sports Mania**, 3550 N. 35th Ave., Phoenix, Arizona 85017; Gary Dick, (602) 278-3671



**Scottsdale R/C Raceway**, 3023 N. Scottsdale, Scottsdale, Arizona 85251; Scott Anifson, 480-945-2186



### ARKANSAS

**Grand Slam Hobby**, 5300 S. Zero St., Ft. Smith, Arkansas 72901; Bryon Shumate, (501) 648-1994



**Hobby Town USA**, 356 E Joyce, Fayetteville, Arkansas 72703; Darrell Irvin, (501) 571-3730



**Sparks R.C. Raceway**, 7194 Greene 721 Rd., Paragould, Arkansas 72450; Tommy Sparks, (870) 239-3606



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**California R/C Raceway**, 1230 N. Kramer, Anaheim, California 92806; Brad or Taka, (714) 630-9340



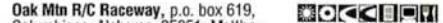
**Capital City R/C Center**, 8950 Osage Avenue, Sacramento, California 95829, 916-383-3445; web: www.capitalcityrc.com



**Castle Hobbies**, 14918 Camden Ave., San Jose, California 95124, (408) 377-3771



**CCRC**, Central Park, California City, California 93050; Josh Geiger, (760) 373-2537; email: res0cuvs@verizon.net



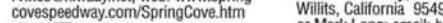
**Crystal Park Raceway**, 123 Artesia, Compton, California 90202-4925; James Reese, 310-631-0307; email: milt01@info@crystalparkraceway.com



**Delta R/C Raceway & Hobbyshop**, 1201 W. 10th Street, Antioch, California 94509; Jerry, (705) 778-2965; web: www.deltarc.com



**Fastrax**, 4451 Inyokern Rd., Ridgecrest, California; Danny Quinn, (760) 377-1193; email: webmaster@fastraxrc.com; web: www.fastraxrc.com/



**Grams Raceway**, 2701 Deer Lane, Willits, California 95490; Nathan Long or Mark Long; email: bladeboy69@hotmail.com



**Hobby Central Raceway**, 13461 Community Road, Poway, California 92064; Lee, (858) 513-0373; web: www.hobby101.com



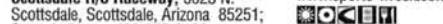
**Hobby World**, 6148 Bollinger Rd., San Jose, California 95129; Guy Bassett, (408) 873-2109



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**Jake's Performance Hobbies**, 6650 Commerce Blvd. #21, Rohnert Park, California 94928; Jake, (707) 586-3375; email: JPHRacing01@aol.com



**JD Racings**, 600 S. Michigan Blvd., Pasadena, California 91107; John Milinovich, (626) 744-1910; email: john@sports-wreck.com; web: www.sports-wreck.com/jd



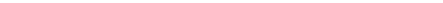
**K&M Raceway**, 22474-A Barton Rd., Grand Terrace, California 92313; Tyson Voll, (909) 783-0899



**L&B Bone Yard**, 5914 Plans St., Inyokern, California 93527; Louis Marcus, (714) 377-4811



**Lucerne Valley Raceway**, 32800 Old Woman Springs Rd. #4, P.O. Box 2047, Lucerne Valley, California 92356; Frank Rodriguez, (760) 248-7305



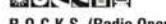
**Nor-Cal Mini-Speedway**, 519 Bush St., Woodland, California 95695; Steve Van Atta, (530) 668-5678



**Paradise Hobbies**, 491 Pearson Rd., Paradise, California 95969; David Lafabregue, (530) 877-6447; email: paradisehobbies@aol.com



**Porterville RC Raceway**, 155 N Newcomb, Porterville, California 93257; Dan Beebe, (559) 789-0545; email: dabeebe@thegrid.net



**R.O.C.K.S. (Radio Operated Car Club of Solano)**, 2525 W. Texas St., Fairfield, California 94533; Mike Learn, (707) 447-0492



**Racer's Haven Raceway**, 7401 White Lane #12, Bakerfield, California 93309; Greg Cooper, (805) 835-0441



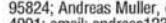
**Rattlesnake Raceway**, 16470 Benson Rd., Cottonwood, California 96022; Mel or Mike Fisher, (530) 347-7215; email: RC-geezers@aol.com; web: members.nbcn.com/CAR-RCORR



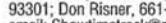
**Rescue Mini R/C Speedway**, PO Box 206, Rescue, California 95672; Bruce Pease, (530) 621-3948; web: www.innercircle.com/~rcracing/



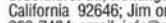
**Ripon R/C Speedway**, 701 N. Acacia Ave., Ripon, California 95366; Dan Tani, (209) 599-5160



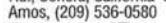
**Sacramento RC Racing & Hobbies**, 6201 27th St., Sacramento, California 95824; Andreas Muller, (916) 424-4001; email: andreas123@earthlink.net; web: www.77sunset.com



**Showtime R/C Speedway**, 3805 Chester Ave., Bakersfield, California 93301; Don Risner, 661-203-1481; email: Showtimetrack@aol.com; web: WWW.ShowtimeSpeedway.com



**So Cal R/C Raceway**, 19118 Brookhurst St., Huntington Beach, California 92646; Jim or Lana, 714-963-7484; email: info@socalrc.com; web: www.socalrc.com



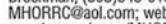
**Sonora R/C Raceway**, 659 Sanguineti Rd., Sonora, California 95370; Jeff Amos, (209) 536-0580



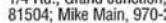
**Speed Shop Raceway**, 2198 Beach Street, Huntington Beach, California 92646; Yoshiura, (949) 673-1434



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**K&N R/C Speedway Inc.**, 55 West St., PO Box 64, Stafford Springs, Connecticut 06076; Jim Tierinni or Steve Schmid, (860) 684-9896



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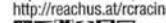


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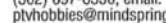


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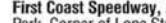
**Daytona R/C Racing Assoc.**, 1190 Golf Ave., Ormond Bch., Florida 32174; Tim Davis, 904-676-9001; email: tda32@earthlink.net; web: www.oe-pages.com/SPORTS/Autoracing/4/tDavis/



**Farmers Hobby Shop & Raceway**, 5006-3 E. Broadway, Tampa, Florida 33619; Greg Cardone, 813-248-3314; web: www.farmershobby.com



**First Coast Speedway**, Arlington, Corner of Lone Star Rd. & Mill Creek Rd., Jacksonville, Florida 32211; Dennis Harvey, 904-744-0400; email: dthwoodley@aol.com; web: www.footsite.com/marina/finistere/1605/fcs



**G&H Hobby Raceway**, 1228 Hypoluxo Rd., Lantana, Florida 33462; George, 561-547-3812; email: gnhobbies2@cs.com; web: www.gnhobbies.com



**Monza R/C Speedway**, Palmetto Hwy. & SW 40 St., Miami, Florida; Ed Delgado, (305) 437-9895



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**South Palm Beach Racers**, 1724 South West 7th St., Boca Raton, Florida 33486; Mike Fazio, 561-338-5367; email: [epine01@bellsouth.net](mailto:epine01@bellsouth.net); web: [www.gopbi.com/community/groups/sprbrcub/](http://www.gopbi.com/community/groups/sprbrcub/)



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**Tallahassee R/C Speedway**, Easterwood dr., Tallahassee, Florida 32301; Roland Costine, 850 671 2814; email: [hidingami@aol.com](mailto:hidingami@aol.com); web: [www.geocities.com/rccdude1/rccars.htm](http://www.geocities.com/rccdude1/rccars.htm)



**West Coast R/C Club**, 17320 North Dale Mabry (Track Address), Lutz, Florida 33549; J.R. Sanyet, President, 813-991-0168



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**Dalton Raceway and Hobby**, 3036 Parquet Road, Dalton, Georgia 30720; Keith Manton, 706-226-6699; email: [keithm@dalton.net](mailto:keithm@dalton.net); web: [www.daltonraceway.com](http://www.daltonraceway.com)



**Hobby Town Raceway**, 6770 Veteran's Parkway, Columbus, Georgia 31909; Frank Bastos, (706) 660-1793; email: [fbastos@mindspring.com](mailto:fbastos@mindspring.com); web: [www.hobbytown.com](http://www.hobbytown.com)



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**SCORE-Phil Hurd Raceway**, 41 Cove Dr., Savannah, Georgia 31419; J. Filipow, (912) 232-9985; email: [fliipow@scad.edu](mailto:fliipow@scad.edu); web: [www.score-racing.org](http://www.score-racing.org)



**Sugar Bowl R/C Speedway**, 5272 Nelson Brogdon Blvd., Sugar Hill, Georgia 30518; Shelley Bailey, (770) 945-6709



**The Flight Box Hobby Shop**, 3134-C Rockmart Rd., S.E., Rome, Georgia 30161-6826; Leslie Duke, (706) 234-3014



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**A.S.I. Racing**, 4-356 Kuhio Highway, Kapaa Kauai, Hawaii 96746; Arnold Morales, 808-821-8132



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**Almosta Ranch Speedway**, 1732 Elridge Ave., Twin Falls, Idaho 83301; Casey Clements, (208) 733-8219



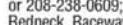
**Boise Hobby Raceway**, 4516 Overland Rd., Boise, Idaho 83705; Jim, (208) 363-9555



**Capital Dirt Burners**, PO Box 44754, Boise, Idaho 83711-0754; Jim Small, 208-433-1631; web: [www.communities.msn.com/capitaldirtburners](http://www.communities.msn.com/capitaldirtburners)



**Redneck Raceway**, 1188 1/2 Wilson Ave., Pocatello, Idaho 83201; Randy Willson or Tim Hancock, 208-238-3353 or 208-238-0609; email: [Redneck\\_Raceway@hotmail.com](mailto:Redneck_Raceway@hotmail.com)



## ILLINOIS

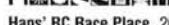
**AJS Raceway & Hobby**, 10211 Kesslinger Rd., Dekalb, Illinois 60115; AJ, 815-756-2772; web: [www.ajsraceway.com](http://www.ajsraceway.com)



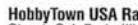
**C.I.R.C.A.**, 905 Bibbs St., Jacksonville, Illinois 62650; Sport en' Hobby, (217) 245-1375



**Dirt Slingers RC Club**, Otterville Rd., Otterville, Illinois 62052; Dan Dierking, 618-498-4437; email: [dirtslingers@hotmail.com](mailto:dirtslingers@hotmail.com)



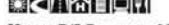
**Hans' RC Race Place**, 2051 2100th St., Atlanta, Illinois 61723; Hans Bishop, (217) 648-2915



**HobbyTown USA Raceway**, 1000 Lake Street, Oak Park, Illinois 60301; Mark Kovarik, 708-445-8056; email: [htuopil@aol.com](mailto:htuopil@aol.com)



**Machesney Park Raceway**, 1220 Shappert Dr., Machesney Park, Illinois 61115; Gina, (815) 282-1311; email: [mp30@hornerstead.com](mailto:mp30@hornerstead.com)



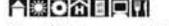
**Monee R/C Raceway**, 26049 Ridgeland Ave., Monee, Illinois 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 599-5597 (office)



**R/C Raceway**, 1200 West Algonquin Road Lot #3, Palatine, Illinois 60067; Jamie Pauls, 847-612-3140; email: [jamie@sharingideas.com](mailto:jamie@sharingideas.com); web: [www.sharingideas.com](http://www.sharingideas.com)



**Radio-Active Raceway**, 751 N. Bolingbrook Dr., #15, Bolingbrook, Illinois 60440; Jim, (630) 759-7557



**RiverCity Raceway**, 2524 W Farrelly Ave #D, Peoria, Illinois 61615; Don Davis, (309) 682-4000; email: [sales@thecollectorschoice.com](mailto:sales@thecollectorschoice.com); web: [www.thecollectorschoice.com](http://www.thecollectorschoice.com)



**Triangle RC Racing**, 1870 CR1600N, Urbana, Illinois 61803, (217) 469-0121



**Venture Raceways**, 19091 West Casey Rd., Libertyville, Illinois 60048, (847) 549-6963



## INDIANA

**Bremen Racing Ent.**, 308 N. Bowen Ave., Bremen, Indiana 46506; Dale Heuberger, 219-546-3807



**Duneland Hobbies & Raceway**, 1601 W 37th, Hobart, Indiana 46368; Ron, 219-945-1239; email: [RTrobaugh1@email.msn.com](mailto:RTrobaugh1@email.msn.com); web: [www.dunelandhobbies.com](http://www.dunelandhobbies.com)



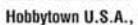
**GM Raceway**, 1651 W. Franklin St., Elkhart, Indiana 46516; Pete Russell, 219-293-1827



**Hardesty R/C Raceway**, 11 East Plymouth St., Hamlet, Indiana 46532; Max Hardesty, (219) 867-8600



**Hobby Barn Raceway**, 1950 Springhill, Terre Haute, Indiana 47802-9694, (812) 299-5773



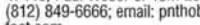
**Hobbytown U.S.A.**, 6336 E. 82nd St., Indianapolis, Indiana 46250; Sonny Brown, (317) 845-4106; email: [trackinfo@hobbytownindy.com](mailto:trackinfo@hobbytownindy.com); web: [www.hobbytownindy.com](http://www.hobbytownindy.com)



**Madison Fun Wheelers**, 4-H fair-gounds S.R.D. 256, Madison, Indiana 47250; Charles McCormick, 812-265-4576; email: [chatchel@seidldata.com](mailto:chatchel@seidldata.com)



**P&T Hobbies and Raceway**, RR #2 (Hwy. 60), Box 450A, Mitchell, Indiana 47446; Paul Weber or Tom Logsdon, (812) 849-6666; email: [ptnhobby@bigfoot.com](mailto:ptnhobby@bigfoot.com)



**Pete Russell's R/C Speedway**, 1651 W. Franklin St., Elkhart, Indiana 46516; Pete Russell, 219-293-1827



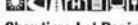
**R/C World of Indiana**, 2246 West U.S. Hwy. 36, Lynn, Indiana 47355; Joe Kolp, (765) 874-2464; email: [rcworld@global-site.net](mailto:rcworld@global-site.net); web: [www.RCWORLD.com](http://www.RCWORLD.com)



**RC Barn**, 310 N 125 W, Monroe, Indiana 46772; Mark Lengerich, (219) 692-5600; email: [bigdaddy@adamswells.com](mailto:bigdaddy@adamswells.com); web: [www.rcbarn.com](http://www.rcbarn.com)



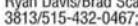
**Schoolyard RC Speedway**, 3020E US 20, Lagrange, Indiana 46761; David Bryan, 219/463-3598; email: [dwbyran@loc.net](mailto:dwbyran@loc.net)



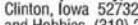
**Showtime Lot Racing**, 606 Lower Huntington Road, Fort Wayne, Indiana 46819; Mike Romines, (219) 478-6099



**Del's Speedway**, 423 11th Ave. So., Clinton, Indiana 52732; Rusti's Miniatures and Hobbies, (319) 243-2697



**Fast Pace Hobbies**, 3101 Lee Street, Alexandria, Louisiana 71301; Joseph or Casey Toralba, 318-561-2070; email: [fastpacehobbies@aol.com](mailto:fastpacehobbies@aol.com)



**Gator R/C Raceway**, 3691 Hwy 171, Moss Bluff, Louisiana 70612; Tony Diaz, 337-855-3206; email: [keithsjac@aol.com](mailto:keithsjac@aol.com); web: [homepage.mac.com/kmaples/](http://homepage.mac.com/kmaples/)



**Red Stick R/C Raceway**, 8844 Greenwell Springs Rd., Baton Rouge, Louisiana 70814; Michael Pino, 225-218-1002; email: [redstickracing@aol.com](mailto:redstickracing@aol.com); web: [www.redstickracing.com](http://www.redstickracing.com)



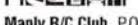
**Inside Challenge**, 2028 Main St., Keokuk, Iowa; Jessie, (319) 524-2225



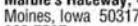
**Iowa City R/C Racing Association**, Johnson County Fairgrounds, Bldg. 6, 3149 Old Highway 218 South, Iowa City, Iowa 52240; Hobby Corner, (319) 338-1788



**Marble's R/C Raceway**, 4685 SE 40 St., Des Moines, Iowa 50317; Rick Marble, (515) 262-7507



**Radio Control Raceway Park**, 2100 First Avenue North, Fort Dodge, Iowa 50501-6746; Bernie Halverson, (515) 576-3780; email: [bhaverson@odogenet.com](mailto:bhaverson@odogenet.com)



**Radio Control Raceway Park**, 2100 First Avenue North, Fort Dodge, Iowa 50501-6746; Bernie Halverson, (515) 576-3780; email: [bhaverson@odogenet.com](mailto:bhaverson@odogenet.com)



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**Marble's R/C Raceway**, 4685 SE 40 St., Des Moines, Iowa 50317; Rick Marble, (515) 262-7507



**R&L Hobbies & Racing**, 9782 Portage Rd., Portage, Michigan 49002; Rex Simpson, (616) 323-3686; web: www.rlhobbies.com



**R.A.C.E. Inc.**, 3227 Mathews, Jackson, Michigan 49203; Sam Sprang, (517) 787-9161



**Raw Roots Race Tracks**, 14623 East Croswell 1/4 mile north on 152nd (off U.S. 31), West Olive, Michigan 49460; Roy Bennink, (616) 399-9338



**Village Hobbies-n-Crafts**, P.O. Box 153; 195 North Elm, Hesperia, Michigan 49421; Alan or Fran, (616) 854-1374



**Village R/C Raceway**, 45190 Lake Dr., Decatur, Michigan 49045; Chuck Nolke, (616) 423-7878



**Washtenaw R/C Raceway**, 2252 South Main St., Ann Arbor, Michigan 48103; Jim Rousseau, 734-395-5048



## MINNESOTA

**Bruce McCullough Memorial R/C Speedway**, 1215 14th St., Cloquet, Minnesota; Howie Port, (218) 879-5174; email: porthole@minicomm.net



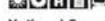
**Country R/C Raceway Park**, 24214 325th St., Belview, Minnesota 56214-8115; Charles L. Steffl, 507-641-8115



**J's Radio Control Race Park**, 22994 290th Ave., Starbuck, Minnesota 56381; Jay Campbell, (320) 239-4827



**Kevin's Off-Road Raceway**, 702 So. Washington Ave., Crookston, Minnesota 56716-2317; Kevin Altepeter, (218) 281-7523; email: kevin@krpproducts.com; web: www.krpproducts.com



**National Speedway**, 1202 East Moore Lake Drive, Fridley, Minnesota 55432; Steve Hedenland, 763-571-9283; email: mrtlp@nationalhobby.com; web: www.nationalhobby.com



**Northwoods Hobby Raceway**, 2638 Hwy 25 North, Brainerd, Minnesota 56401; John or Doug, (218) 829-9257



## MISSISSIPPI

**Meridian RC Speedway**, P.O. Box 229, Meridian, Mississippi 39302; Joe or Pearce, 601-483-7000



**Small Cars Unlimited**, 820 Cooper Road, Jackson, Mississippi 39212; Ed Hill, 601-372-3278; email: fast@smallcarsunlimited.com; web: www.smallcarsunlimited.com



**X-Treme RC**, 18332 Amanda Lane, Saucier, Mississippi 39574; Marty Capers, (228) 539-2004



## MISSOURI

**B&L Hobbies & Raceway**, 2800 Anchor Dr., Park Hills, Missouri 63061; Bob Marler, (573) 431-9444



**North Missouri Raceway**, 223 Graves St., Chillicothe, Missouri 64601; Billy Johnston, (660) 646-1120



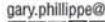
**Novelty R/C Raceway**, RR1 Box 132A, 5th & Main, Novelty, Missouri 63460; Rex & Jeni Franke, 660-739-4546; email: rexjen@marktwain.net; web: sites.netscape.net/tracker2rex/home-page



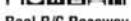
**Ozarks R/C Raceway**, 1923 E. Kearney, North Town Mall, Springfield, Missouri 65803; Gene Rhodes, 417-873-9350(Track), 417-742-4376(Home); email: OzarksRaceway@aol.com



**RCTRAX Racing Club of Central Missouri**, 6150 Old Rt 124, Hallsville, Missouri 65255; Gary Phillippe, 573-886-3799 or 573-442-8183; email: gary.phillippe@verizon.com



**Real Blue Vue R/C**, 12019 E. 47th St., Kansas City, Missouri 64133; Steve Hale, (816) 358-0238; email: hrealrc@aol.com; web: www.geocities.com/real\_rc\_raceway



**Real R/C Raceway**, 24204 State Rt. 58, Pleasant Hill, Missouri 64080; Steve Hale, (816) 540-5584; email: hrealrc@aol.com; web: www.geocities.com/real\_rc\_raceway



**Showtime Speedway**, 3805 N. Chester Ave., Barnesfield, Missouri; Don Risner, (601) 203-1481



## NEBRASKA

**Hadar R/C Raceway**, 55192 849th Rd., Norfolk, Nebraska 68701; John Schoenauer, (402) 644-7922



**Hobby Town Raceway**, 220 N. 66th, Lincoln, Nebraska 68505; Chris or Chad, 402-434-5056; email: eaststore@aol.com



**Hobby Town USA Raceway Park**, North First St., Cornhusker Hwy., Lincoln, Nebraska 68508; Chad or Chris, 402-434-5056; email: eaststore@aol.com



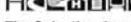
**NASCAR Raceway**, Ashley Park/Broadwell & Capital Ave., Grand Island, Nebraska 68801; Steve Blayne, 308-382-0920; email: spinkgi@nebi.com



**O.N.R.O.A.D.**, 3307 N. 58 St., Omaha, Nebraska 68104; CoRK Jacobs, (402) 556-8674



**OTWG Carpet Raceway**, 55129 849th Rd., Norfolk, Nebraska 68701; John Schoenauer, (402) 644-7922



**The Salvation Army Speedway**, 4032 Harrison St., Omaha, Nebraska 68164, 402-734-3414



## NEVADA

**Dansey's Indoor R/C & Hobbies**, 741 N. Nellis, Las Vegas, Nevada; David Lugo, (702) 453-RACE or (888) 675-8963; web: www.danseys.com



**Las Vegas R/C Raceway**, 1735 Juan Tabo, Albuquerque, New Mexico 87112; Isaac Garcia, 505-298-1023; email: yokasi@aol.com; web: www.bigboystoys.theshoppe.com



## NEW HAMPSHIRE

**Lakes Region R/C Speedway**, Lilly Pond Road, Gilford, New Hampshire 03246; Louie Blais, 603-524-2909; email: lakerigore@comcast.net; web: www.lakesregionrc.homestead.com/home.html



**T-Rix Bikes & R/C Shop**, 717 West Idaho St., Elko, Nevada 89801; Gary Perkins, (775) 777-8804; email: MTN-MAN14@HotMail.com; web: N/A



## NEW JERSEY

**America's Hobby Center Inc.**, 8300 Tonelle Ave., North Bergen, New Jersey 07047; John Mani, (201) 662-0777; web: www.ahci1931.com



**Checkerboard Raceways**, P.O. Box 240, Elwood, New Jersey 08217; Ray Murray, 856-629-9413; email: RaysTrack@webtv.net



**Family Hobbies Raceway**, 3576 N.W. Blvd. & Weymouth Rd., Vineland, New Jersey 08360; Linda Vogel, 856-696-5790



**Jackson R/C Racing**, P.O. Box 565, Christopher Columbus Blvd., Jackson, New Jersey 08527; Al Sodano, 732-364-6422(A) 732-928-8963(Ed)



**Jefferson Speedway**, 5494 Berkshire Valley Rd., Oak Ridge, New Jersey 07438; Mike, (201) 697-7525



**Millville R/C Oval & Roadcourse**, Cedarville Rd., Millville, New Jersey 08332; William Denzot, 856-327-4640



**On Trax Hobbies**, 3101 Rte. 70, Browns Mills, New Jersey 08015; Joseph DiGirolamo, (609) 735-0422



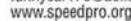
**PottBelly's R/C Speedway**, 1039 Landis Ave., Vineland, New Jersey 08360; Drew Anastasio, 856-875-2132; email: www.geocities.com/pottbellyrc; web: www.PottBellys.homepage.com



**South Jersey Cost Controlled Racing**, 25 Jackson Lane, Sicklerville, New Jersey 08081; Ray Murray, 856-629-9413; email: RaysTrack@webtv.net; web: community.webtv.net/RaysTrack/SouthJerseyCost



**SpeedPro Dragway**, 70 Florida St., Elizabeth, New Jersey 07206; Albie Niziolek, 908-351-5080; email: funnycar176@aol.com; web: www.speedpro.org



**The Race Place**, 1151 Hwy. 33, Farmingdale, New Jersey 07731; John Fary, (908) 938-5215



**Wacky RC Raceway**, 409 East Second Ave., Roselle, New Jersey 07203; Tony Williams or Kimble Wright, (908) 241-6700



## NEW MEXICO

**Albuquerque R/C Off-Road Raceway**, Track-Ten Tenor Fields on Coors and Arenal; Mail: 5409 Tamari Dr. NW, Albuquerque, New Mexico 87120; Bill Mitchell, (505) 243-0681(W); 898-6181(H); email: mitchelw@flash.net



**Big Boys Toys Raceway**, 1735 Juan Tabo, Albuquerque, New Mexico 87112; Isaac Garcia, 505-298-1023; email: yokasi@aol.com; web: www.bigboystoys.theshoppe.com



**BarnStormers Speedway**, KoeHos Drive, Chester, New York 10918; Lou, 845-469-6468; email: lamsstmsa@hotmail.com; web: www.barnstormers.virtualave.net



**Brennan's RC Hobbies**, 6368 State Rt. 5, Vernon, New York; Bill or Tom Brennan, (315) 829-4930



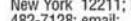
**Bruckner Racing**, 2908 Bruckner Blvd., Bronx, New York 10465; Thomas Baffers Sr., (800) 288-8185



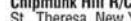
**C&C Speedway**, 570 Conklin Road, Binghamton, New York 13903; Eric Boyd, (607) 773-2044



**Capital District Radio Controlled Stock Car Club**, 27 Venus Dr., Loudonville, New York 12211; Peter Willis, (518) 482-7128; email: rcpepe1221@yahoo.com; web: www.cdrccscc.homestead.com



**Chippmunk Hill R/C Speedway**, 217 Pine St., Theresa, New York 13691; Ted or Peter House, (315) 628-5065



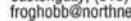
**Competition Hobby**, 1006 Loudon Rd., Cohoes, New York 12047; Howie Cummings, 518-786-3622; email: hic300@aol.com



**East Coast R/C Hobbies**, Floyd Bennett Field, Brooklyn, New York 11204; John Giangrande, 718-627-3814



**Fastraks**, Mini Pines Village, Hogsburg, New York 13655; Mark Castonguay, (518) 358-3686; email: froghob@aol.com; web: www.fastraks.8m.com



**The Antique Barn**, 2810 Forest Hills Rd. SW, Vilson, North Carolina 27893; Steve, (522) 237-6778; email: antiquebarn@esn.net



**HOBBY ZONE RACEWAY**, 88-16A Liberty Ave., Ozone Park, New York 11417; Brian, Sean, or Adam, (718) 641-9001; email: moonchaser-wolf@aol.com



**Lil Wheels Raceway**, 284 West 5th Street, Oswego, New York 13126; Bill Meyer, 343-6566; email: lilwheelsraceway@hotmail.com; web: www.lilwheelsraceway.tsx.org



**Long Island Raceway**, 168 Broad Hollow, Farmingdale, New York 11735; James, (516) 845-7223; web: www.raceway.com



**PRO Speedway**, 5 Washington St., Cattaraugus, New York 14719; Marc Pritchard, (716) 257-3101



**Radio Hill Raceway**, 1219 Shannon Corners Rd., Dundee, New York 14837; Bill or Greg, 607-243-8641 (Bill); 607-243-7899 (Greg)



**Rampage R/C & Hobbies**, 782 Rt. 9G, Rockledge Plaza, Hyde Park, New York 12538; Brian Walker, (845) 229-1379



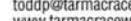
**South Shore Hobby & Raceway**, 464 East Main St., Patchogue, New York 11772; Benny or Bonnie, 631-758-5567; web: www.southshorehobby.com



**Southern Tier Raceway**, 88 Paige St., Owego, New York 13827; Anita Harding, (607) 687-5395



**TARMAC Ultimate R/C Raceways**, 28-30 Mountain View Rd., Poughkeepsie, New York 12603; Todd Plass, 845-342-5409 (Todd); 845-454-8276 (Track-Sundays); email: tddp@tarmacraceway.com; web: www.tarmacraceway.com



**Walt's Hobby**, 2 Dwight Park Dr., Syracuse, New York 13209; Bruce, 315-453-2291; web: www.walts-hobby.com



**Big Boys Toys Raceway**, 1735 Juan Tabo, Albuquerque, New Mexico 87112; Isaac Garcia, 505-298-1023; email: yokasi@aol.com; web: www.bigboystoys.theshoppe.com



**Willis Hobbies R/C Speedway**, 300 Willis Ave., Mineola, New York 11501; Ken Ford, 516-746-3944; web: www.willishobbies.com



**NEW YORK**

**Chapel Hill RC Assoc./Hungates RC Racing**, Hungate's University Mall, 201 S. Estes Drive, Chapel Hill, North Carolina 27514; Tom Gabriel, 919-933-7671; email: chapelhillrc@yahoo.com; web: www.geocities.com/chapelhillrc



**Chatham R/C Raceway**, 326 Reno Sharpe Store Rd., Bear Creek, North Carolina 27207; Dwight Fields, (919) 898-2991; email: chatham\_rc\_speedway@yahoo.com; web: www.chathamrc-speedway.com



**C.R.C. Speedway**, 1415 Henderson Grove Church Rd., Salisbury, North Carolina 28147; Ronnie Linker, (704) 637-2565



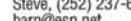
**Rosewood RC Speedway**, 651 Community Dr., Goldsboro, North Carolina 27530; Glenn Elam, 919-731-4734



**Sandhills Raceway**, P.O. Box 178, Southern Pines, North Carolina; Mike Russel, 910-245-4450; email: mrmrc@midnightspring.com; web: www.sandhillsraceway.com



**Southern RC Motorsports Club**, Hwy 17S, PO Box 1651, Shallotte, North Carolina 28459; Eddie Ferster, (910) 754-8528



**The Antique Barn**, 2810 Forest Hills Rd. SW, Vilson, North Carolina 27893; Steve, (522) 237-6778; email: antiquebarn@esn.net



**River Rat Racing**, 1002 Park Avenue, Ripley, Ohio 45167; Tom Faris, 937-929-9298; email: honey3@bright.net; web: www.riverratraceway.com



## NORTH DAKOTA

**Grand Forks Remote Control Racers**, 915 25th Ave So, Grand Forks, North Dakota 58201; Dan Miller, 701-746-9910; email: dandj@muah.org/gfrcr



## OHIO

**AK Hobby & Raceway**, 3826 North Bend, Cincinnati, Ohio 45211; Tim Tolle, (513) 661-7080; email: tim@akhobby.com; web: www.akhobby.com



## AMERICAN OHIO

**American Ohio Sprint Car**, 1708 Empire Rd., Wickliffe, Ohio 44205; Gary Waldhelm, 440-944-9966; email: www.aosca.8m.com



## BLACK SWAMP

**Black Swamp RC Car Club**, 5333 Monroe St., Toledo, Ohio 43626; Riders Hobbies, 419-843-2311; email: ridersrc-club@webtv.net; web: www.blackswamprc.cjb.net



## CORCAR

**CORCAR/Sams Club**, 128 Amity Rd., Galloway, Ohio 43119-8732; Bill Stevenson, (614) 870-7159



**TARCAR**, 7216 Nebraska Ave., Toledo, Ohio 43617; Bill Bridges, (419) 826-3859



**Ultra Racing R/C Hobby and Track**, 3249 Dixie Hwy, Hamilton, Ohio 45015; Ed Lewis, 513-863-7342; email: UltraRacing@aol.com; web: www.rccaronline.com



**Van Wert R/C Raceway**, 144 E. Main St. (above Hoverman Music), Van Wert, Ohio 45891; Mark Davis, (419) 232-2112

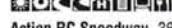


## OKLAHOMA

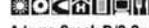
**Action Hobbies**, 4955 S. Memorial, Tulsa, Oklahoma 74145; David Cole, (918) 663-8898; email: acthobby@aol.com



**Action RC Speedway**, 3616 SE 59th, Oklahoma City, Oklahoma 73135; Jerry Hawthorne, (405) 670-7770; email: ginn@flash.net; web: www.actionrc.com



**Action RC Speedway**, 3616 SE 59th, Oklahoma City, Oklahoma 73135; Jerry Hawthorne, (405) 670-7770; email: ginn@flash.net; web: www.actionrc.com



**Adams Creek R/C Speedway**, 5207 S. 194th E. Ave., Broken Arrow, Oklahoma 74014; John Beigle, (918) 355-1416



**Competition R/C**, 100 SE 89th, Oklahoma City, Oklahoma 73149; James or Louise Brown, (405) 634-0809; email: compre1@aol.com



**Enid R/C Speedway**, 1831 S. Van Buren, Enid, Oklahoma 73703; Darin Pendleton, (580) 554-9400; email: darin@enid.com; web: www.enidrcracing.com



**HobbyTown USA**, 1264 N. Interstate Dr., Norman, Oklahoma 73072; Todd Jenson, (405) 292-5850

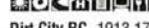


**Wings N Things Raceway**, 5241 S. Peoria, Tulsa, Oklahoma 74105; Heath Anderson, (918) 745-0007

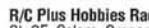


## OREGON

**Competition Racing Association**, 17941 N.E. Gilian, Portland, Oregon 97230; Mark Taylor, (503) 761-1334; web: www.teleport.com/~crmark



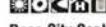
**Dirt City RC**, 1913 17th Ave., SE, Albany, Oregon 97321; Doug Vertrees, (541) 791-1089; email: quicktemperr@aol.com



**R/C Plus Hobbies Raceway**, 1685 25th St. SE, Salem, Oregon 97302; Ron Smith, (503) 364-9188; email: rplus@rplus.com; web: www.rplus.com



**R/C Speed Center**, 2810 N. Pacific Hwy., Medford, Oregon 97501; Gene & Betty Jean Skelton, 541-779-8298



**Rose City Scale Racing**, Jantzen Beach Super Center (K-Mart Parking Lot), Milwaukie, Oregon 97222; Rick Strauss, (503) 631-2929; web: www.rc-cars.com



## PENNSYLVANIA

**Courtview Raceway**, 20 S. Main Street (lower level), Washington, Pennsylvania 15301; Aaron Stimmell Jr., (724) 225-0398



**DC Ultra Trax**, 13 York Rd., Warminster, Pennsylvania 18974; David Cowan, (215) 672-5200; web: www.jrcchobbies.com



**Dreamboat Hobbies**, 2810 Pennsylvania Ave. W., Warren, Pennsylvania 16365; Louie Dussia, (814) 723-8052; email: dreamboat77@yahoo.com



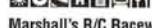
**J&K Raceway**, 1240 Allegheny Street, Jersey Shore, Pennsylvania 17740; Jim Shipton, 570-398-8171; email: romaniac01@msn.com



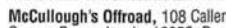
**Kranzel's R/C Raceway & Hobbies**, 415-B Bosler Ave., Lemoyne, Pennsylvania 17043; David or Stuart Kranzel, (717) 737-7223; web: www.kranzelrchobbies.com



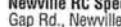
**Little Plum R/C Hobbies**, RR 1 Box 330, Lock Haven, Pennsylvania 17745; Larry Duck, (570) 769-1984



**Marshall's R/C Raceway**, RR 4, Box 640, Honesdale, Pennsylvania 18431; Bill or Dot Marshall, (570) 729-7458



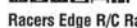
**McCullough's Offroad**, 108 Callen Rd., Sarver, Pennsylvania 16055; Doug McCullough, (724) 352-0116; email: DMcCull323@aol.com



**Newville RC Speedway**, 130 Doubling Gap Rd., Newville, Pennsylvania 17241; Randy or Mike, 717-776-5547; email: newvillercspeedway@yahoo.com; web: www.newvillercspeedway.com



**Pit Stop Hobbies**, 262 W. Main St., Mount Joy, Pennsylvania 17552, (717) 653-6222



**Racers Edge R/C Racing**, RR#1, Box 271, Smethport, Pennsylvania 16749; Rick Morgan or John Simar, (814) 887-2269; email: morg@penn.com; web: users.penn.com/~morg/track.html



**RB Motorsports & Hobby**, Route 147 North, Northumberland, Pennsylvania 17857; Rick Bunting, (570) 473-8711



**RC Avenue II**, TrackAddress, Bradenville, Pennsylvania 15650; Chris Dernay, 724-537-9592; email: 12ss@msn.com



**RC Outfitters RCO Raceway**, 519 Broadway, Hanover, Pennsylvania 17331; Chris Shaffer, (717) 633-9490; web: www.rochobbies.com



**Riverside Raceway**, PA Ave. W. & Hickory, Warren, Pennsylvania 16365; Jeff, (814) 723-4211



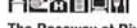
**Schmidt's R/C Club(Hobby)**, 4946 Clear Shade Dr., Windber, Pennsylvania 15963; Bruce Schmidt, (814) 266-4118



**Staub Bros. R/C Speedway**, 31 Locust St., Gettysburg, Pennsylvania 17325; Todd or Scott Staub, 717-334-8488; web: user.supernet.com/staub/speedway



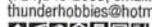
**The Hobby Depot**, 558 Lancaster Ave., Malvern, Pennsylvania 19320; Chris McGovern, 610-725-8317



**The Raceway at River Junction**, 1216 4th St. (behind cemetery), Beaver, Pennsylvania 15009; Sam or John, (724) 728-5571; email: riverjct@star-gate.net



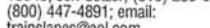
**Thunder Hobbies Raceway**, 1715 Route 266 South, Indiana, Pennsylvania 15701; Brent or Lori Marshall, (724) 349-2639; email: thunderhobbies@hotmail.com



**Track 84**, 920 Mt. Zion Rd., Narron, Pennsylvania 17555; Andrew Flexer, (717) 354-6503



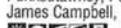
**Trains & Lanes Raceway**, 3825 Northwood Ave., Easton, Pennsylvania 18045; Jeff Setzer, (610) 253-8850 or (800) 447-8911; email: trainslanes@aol.com



**TRP**, 430 Shoemaker Street, Kingston, Pennsylvania 18704; Rob Yeager, 570-283-3066; email: RCR0B99@AOL.COM



**Will Cam Raceway**, RD #7 Box 53, Punxsutawney, Pennsylvania 15767; James Campbell, (814) 939-4251

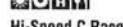


## PUERTO RICO

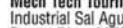
**Bayamon R/C Park**, Carr. 167 KM 10.1 Bo. Dajao RR 5 Box 4999 PMB 44, Bayamon, Puerto Rico 00956; Damian Cruz & Javier Rivera, (787) 869-8092 & 401-2770; email: damian@bayamonrc-park.com; web: www.bayamonrcpark.com



**Hacienda Muñoz R/C Track**, Carr. #14, Juana Diaz, Puerto Rico 00795, (809) 837-7083



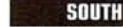
**Hi-Speed C Raceways**, 422 San Caliduo Ave., San Juan, Puerto Rico 00926; Carlos Ortiz, (787) 283-0198; email: hispeed@hotmail.com; web: www.hispeed-hobby.com



**Mech Tech Touring Park**, Parque Industrial Sal Aguas Buenas, Caguas, Puerto Rico 00725; HUMBERTO (TITO) LIZARDO, (787) 739-1572; email: tlizar-di@hotmail.com



**Tropical Raceway Track**, Carr643 Km 4.0 Bo Pugnado, Manati PR., Manati, Puerto Rico 00674; Hector Pabon/ George Pabon, (787) 854-8884 or (787) 884-9294; email: tropohobb@coqui.net



## SOUTH CAROLINA

**Atlantic World of Hobbies**, 2458 Remount Rd., North Charleston, South Carolina 29406; Jimmy Closson, (843) 554-3546; email: manylaps2go@worldnet.att.net



**Atomic Racers**, 373 Boyd Pond Rd., Aiken, South Carolina 29803; Bill Jackson, 706-855-0846 or 803-725-1664



**Carolina R/C Speedway**, 4148 Calhoun Memorial Hwy. (Hwy. 123), Easley, South Carolina 29640; David, 864-295-1209; email: cprahirc@midnightspring.com; web: www.carolinarc.com



**Darlington R/C Raceway at Hobbies & More**, 1570 S. Main St., Darlington, South Carolina 29532; Jerry Pollard, (843) 393-0355; web: www.hobbiesnmore.com



**Hi Voltage Raceway**, 108 Putt Putt Dr., Anderson, South Carolina 29625; Whitner Bowen, 1-864-225-6860; email: jahlon247@aol.com



**The Grove Racing Center**, 939 S. Anderson Rd., Rock Hill, South Carolina 29730; Don Faris, (803) 327-4121



**The Racing Connection**, 4375 Juniper Bay Rd., Conway, South Carolina 29527-4129; Dave Hamilton, 843-397-0124; email: dad@scscoast.net; web: homepage.about.com/superdave09



**South Dakota**  
**Action R/C Raceway**, 107 N. Main(entrance in rear - don't send mail), Mitchell, South Dakota 57301; Royal(day); Roger(evenings), (605) 996-9871 (days); (605) 996-2897 (evenings); email: pioneer@santel.net; web: actionr-craceway.homestead.com/main.html



**Boomerangs Raceway**, 105 N. Main, Hartford, South Dakota 57033; Ed Smithback, (605) 528-7345



**Dakota Off-Road Racers**, 38991 33rd St., Aberdeen, South Dakota 57401; Kevin, 605-225-5223



**Grassland Racers**, 6451 Anderson Rd., Black Hawk, South Dakota 57718; Ryan Logan, (605) 787-5632



**SBK**, 541 Lamro, Winner, South Dakota 57580; Broc Stout, (605) 842-2899

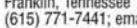


**SK**, 541 Lamro, Winner, South Dakota 57580; Broc Stout, (605) 842-2699

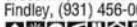


## TENNESSEE

**Blue Springs Speedway**, 2905 Blue Springs Rd., Cleveland, Tennessee 37311; Tyler Price, 423-478-1443; email: Bwrrtrspsts43@aol.com; web: n/a



**Hobby Town USA**, 2000 Mallory Lane, Franklin, Tennessee 37067; Bobby Mills, (615) 771-7441; email: htu126@aol.com



**MSA R/C Racing**, Rt. 12 Box 489 B, Crossville, Tennessee 38555; D.R. Findley, (931) 456-0027



**Need for Speed Raceway R/C**, 2103 Dayton Blvd., Chattanooga, Tennessee 37415; Ronnie Cox, (423) 876-9019



**RC Speedway**, 903 17th Street, Cleveland, Tennessee 37323; James Morgan, 423-472-7854 or 645-5771; email: jmorga59@bellsouth.net



**Robertson's R/C Raceway**, 2811 Hwy 45 South, Jackson, Tennessee 38301; Travis Robertson, 731-423-6984; email: RobertsonsRC@aol.com



**ROCKYARD-RC-MOTO-X**, 176 Bloomer Rd., Bean Station, Tennessee 37308; Larry Hazelwood, 865-604-7775; email: daddyblaster99@aol.com; web: home-town.aol.com/daddyblaster99/ROCK-YARD.html



**Speed Zone Raceway R/C & Hobbies**, Sweetwater Flea Market, Sweetwater, Tennessee 37874; Mike Henderson, (423) 351-0055



**W.O.W. Raceway**, 59 Luray Rd., Beech Bluff, Tennessee 38313; Brad Jones, 731-427-1625; email: wowracer@bell-south.net; web: go.to/wowracing



## TEXAS

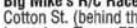
**215 Speedway**, 1814 County Road 215, Abilene, Texas 79602; Clyde Gardner, (915) 673-2351



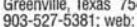
**Austex RC**, 1722A West Anderson Lane, Austin, Texas 78757; Michael, 512-458-2324; web: www.austexrc.com



**B&B R/C Hobbies**, 700 East 4th, Big Spring, Texas 79720; Walter Bumbulis, (915) 263-1790; email: b&brcobbies@apex2000.net



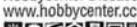
**Big Mike's R/C Raceway**, 1405 W. Cotton St. (behind the Locker Room), Longview, Texas 75604; Mike Sumrow, 903-297-7814



**Drycreek Raceway**, 2518 I-30W, Greenville, Texas 75402; Micky Alphin, 903-527-5381; web: web.pulse.net/drycreek



**Hal's Hobby Raceway**, 1440 Bessemer, El Paso, Texas 79936, (915) 591-2213; web: www.halshobbywarehouse.com



**Hobby Center Race Track**, 18177 Gulf Fwy., Houston, Texas 77098; Issac Ben-Ezra, 281-488-8697; email: Hobbycenter@issacsmodels.com; web: www.hobbycenter.cc



**Hobbytown USA**, 999 E. Basse Rd., Suite 135, San Antonio, Texas 78209-2870; Clark, (210) 829-8697; fax (210) 829-8707



**Indy R/C World**, 2020 Saturn Rd., Garland, Texas 75041; Steve Webster, (972) 271-4844; fax (972) 271-4502; web: www.indyrcworld.net



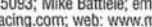
**Js Action R/C**, 4401 Spencer Hwy., Pasadena, Texas 77503; Jack Williams, 713-946-8888; email: jayactionrc.net



**K&M Racing**, 45000 Hwy. 59 N., New Caney, Texas 77357; Brent Mahaffy, (281) 399-9777



**MBRC**, TrackAddress, Dallas, Texas 75083; Mike Battie; email: info@mbrc-racing.com; web: www.mbrcc-racing.com



**Mike's Hobby Shop Superstore & Raceway**, 1605 Crescent Circle, Carrollton, Texas 75006, 972-242-4930; web: www.mikeshobbyshop.com



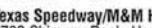
**Performance Raceway**, 1106C Witte Rd., Houston, Texas 77055; Jorge Tabush or Terry Schmid, (713) 464-4458



**T&M Raceway R/C Drag Racing**, 4150 Bettine Rd., Addison, Texas 75244, (972) 478-2399; email: ghostvan@msn.com; web: www.tmraceway.com



**T&R/C Cars**, 3420 Avenue K, Ste. 154, Plano, Texas 75024; Joe Sullivan, (972) 633-2470



**Texas Speedway/M&M Hobby Center**, 6703 Chimney Rock, Houston, Texas 77041; Mike Allen, (979) 740-1737; web: TexasSpeedwayRC.com

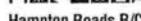
**DRCW Raceway**, 2200 Commerce Parkway, Virginia Beach, Virginia 23454; Les Modlin, 757-340-6681; web: www.debbiesrcworld.com



**Griffin Hobby & Raceway**, 1051 Island Rd., Bristol, Virginia 24201; Danny Griffin & Greg Johnson, (540) 466-3652; email: grjgj@yahoo.com



**Hampton RC Speedway**, 1920 E. Pembroke Ave., Hampton, Virginia 23663; Steve or Bill, (757) 723-1884



**Hampton Roads R/C Drag Club**, 1167 Independence Blvd, Virginia Beach, Virginia 23452; Garry Nelson, 757-399-8645; email: Garry@gsdragracing.com; web: www.HRRCDC.com



**KC's Radio Control & Repair**, Rt. 4, Box 312, Lynchburg, Virginia 24503; Curtis or Kim Wright, (804) 384-6596



**Linville Hobbies Raceway**, 7065 Wengers Mill Road, Linville, Virginia 22834; Jerry Shenk, (540) 833-2222; email: linvillehobbies@juno.com; web: www.linvillehobbies.com



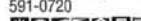
**Old Towne Hobby Shoppe**, 9105 Center St., Manassas, Virginia 20110; Jeff Gough, (703) 369-1197; web: www.oldtownhobby.com



**Shamrock Raceway**, Jim Barnett Park, Winchester, Virginia 22601; Denise Fletcher, 540-869-4162



**Stream Hobby Shop**, 10015 Jefferson Ave., Newport News, Virginia 23605; Rusty Kennedy or Jerry Moore, (757) 591-0720



**STREAM HOBBY SHOP**, 10015 JEFFERSON AVE., NEWPORT NEWS, Virginia 23605; RUSTY KENNEDY, 757-591-0720; email: STREAMRC@AOL.COM; web: STREAMHOBBYSHOP.COM



**The Tilt yard**, 6994 Tilt yard Drive, Dayton, Virginia 22821; Homer, 540-828-3476; email: homer@tiltyard.com; web: www.tilt yard.com



**Thunder Road RC Speedway**, 18079 James Madison Hwy, Gordonsville, Virginia 22947; Robert Binger, (804) 296-6549; email: rwb3y@virginia.edu; web: www.thunderroadrc.com



## WASHINGTON

**A-Main Raceway**, 14011 NE 3rd Ct., Vancouver, Washington 98685; Monty Coleman, (360) 571-8404; web: www.amainraceway.com



**Burien Toyota R/C**, 15025 1st Ave., South, Seattle, Washington 98148; Ray Meek, (800) 654-6456



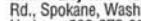
**Cedardale Raceway**, 1673 Cedardale Road, Mount Vernon, Washington 98273; Craig, 360-755-9464



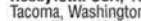
**Fantasy World Raceway**, 7901 S. Hosmer, Suite A6, Tacoma, Washington 98408; Dave Kleinman, (253) 473-6223; web: www.fantasyworldhobbies.com



**Four Season R/C Racing**, 1941 Sleeter Kinney Rd. NE, Olympia, Washington 98506; Gary and Sharon Brown, (360) 491-2430



**Hank Perry Raceway**, 1901 Sullivan Rd., Spokane, Washington 99023; Hal Hudson, 509-879-3503; email: halshudson@msn.com



**HobbyTown USA**, 1901 South 72nd St., Tacoma, Washington 98408; HobbyTown USA Shop, (253) 474-7787



**Paradise Raceway and Hobbies**, 3502 East Wellsey, Spokane, Washington 99207; Mark, 509-483-1843; email: paradise@msn.com; web: www.web-sellers.com/paradise



**Race City**, 125 E. Main St., Auburn, Washington 98002; Bruce, (253) 939-2515; email: auburn@pacifier.com



**Rain City RC Raceway**, 3616 South Road, Suite A-3, Mukilteo, Washington 98021; Peter or Debbie Cartwright, 425-438-2454; email: info@raincityraceway.com; web: www.raincityraceway.com



**Redmond Hobbies Raceway**, 16290 Redmond Way, Redmond, Washington 98052; Stan Ng, (425) 885-3639; email: Info@redmondhobbies.com; web: redmondhobbies.com



**Schmidt's Auto Parts**, 10305 Smoke Point Blvd., Marysville, Washington 98271; Jon Failla, (360) 653-8838; web: www.schmidtscraceway.com



**Spokane Indoor Raceway**, 6422 E. 2nd Ave., Spokane, Washington 99212; Brian Batch, 509-487-2122



**Tacoma R/C Raceway**, 6305 6th Ave., Tacoma, Washington 98406; Scott Brown, (253) 565-1935; web: www.tacomarcraceway.com



**West Coast Hobby & Raceway**, 2239 Stevens Drive, Richland, Washington 99352; Darren Shank, (509) 375-4995



## WEST VIRGINIA

**Burr Fab R.C. Raceway**, 117 Wabash ave., West Union, West Virginia 26456; Mark Travis, 304-873-2487; email: burrhouse1@cs.com



**Fulton's R/C Raceway**, 3301 Chapline St., Wheeling, West Virginia 26003; James Fulton, (304) 233-5355



**Mountwood Raceway**, RR 2 Box 56, Waverly, West Virginia 26184; Ryan Taylor, (304) 295-3217; email: ryan@ovrcrc.com; web: www.ovrcrc.com



**Quies Dell Raceway**, Rt. 6, Box 161G, Fairmont, West Virginia 26554; Darris, (304) 366-1441; email: Tateracing@aol.com



## WISCONSIN

**ABC R/C Inc & Raceway**, 244 W. Main St., Waukesha, Wisconsin 53186; Mark Mathiesen, 262-542-1245; email: Help@abcrhobby.com; web: www.abcrhobby.com



**Best's Hobbies**, 2700 West College Ave., Appleton, Wisconsin 54914; Peggy, 920-734-5244; web: www.best-hobbies.com



**Gary's Hobby Center**, 3701 Durand Ave., Racine, Wisconsin 53403; Bill Phalen, 262-554-8884



**Hobbytown USA - Revolution Raceway**, 3347 Kohler Memorial Drive, #D2-Memorial Mall, Sheboygan, Wisconsin 53081; Kenny, (920) 452-0801; web: www.hobbytownshb.com



**KDM Raceway**, 711 East Spruce, Abbotsford, Wisconsin 54405; Kevin Michig, 715-223-4414; email: kdmhobby@pcprox.net; web: kdmhobby.home-stead.com/kdmhobby.html



**MARCCA Raceways**, 526 S. Monroe St., Monticello, Wisconsin 53570, 608-243-1778; email: asylumr@ yahoo.com; web: www.marcca.com



**Mid-West Tri-Clone/Tri-Clone OffRoad**, 3745 Shuster, West Bend, Wisconsin 53095; Dave Hilpert, 262-334-0429 or 262-626-2238; email: mwtrc@hinet.net; web: www.tricclone.com



**Pro-Star Racing**, 728 Pine St., Green Bay, Wisconsin 54301; Chuck or Terry, (920) 494-1233 or (920) 469-5566



**S&N's Trackside Hobbies and Raceway**, 6045 N. Green Bay Ave., Milwaukee, Wisconsin 53209; Scott Ernst, (414) 351-1910; email: sernst@trackside.com; web: www.trackside.com



**The Shorthill Raceway**, 5900 Hwy 93, Eau Claire, Wisconsin 54701; Scott Schoette, 715-834-0203; email: short-hill@yahoo.com



## WYOMING

**Xtreme Hobbies Raceway**, 2812 Dogwood Ave., Gillette, Wyoming 82716; Krieg Balls, 307-682-6077; email: xtreme@vcn.com



## ARGENTINA

**Circuito R/C Lobos**, Alvear y Quemers, Lobos, Buenos Aires 7240; Rupert Bruce, 54-02227-422905; email: rclobos@yahoo.com; web: www.rclobos.8m.com



**Circuit M.R. Models**, Av. Monroe 1402, Capital Federal, Pque. San Martin - Crmino, del Buen Ayre y Pte. Debedetti, Buenos Aires 1428; Maximiliano Robalos, 54 11 4557 1000, fax 4780 1677; email: info@kyoshargentina.com.ar; web: www.kyoshargentina.com.ar



**Club A. Velez Sarsfield**, Av. J.B. Justo 9000, C.P. 1408, Buenos Aires; Jorge Herrero, 54-01-658-5851



## AUSTRALIA

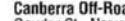
**A.C.T. Model Car Racing Club**, Wanniassa Raceway, Hyland Place, Wanniassa, ACT; Gary Davey, 61-2-2871411



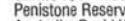
**A.C.T. Remote Control Car Club**, Jenke Circuit, Kambah, ACT; Rob Jorgenson, 61-2-231-9925; email: bjorgo@sr.gov.au; web: users.bigpond.net.au/grij/acrrcc.html



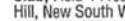
**Aubry R/C Car Club**, Aubry Showgrounds, Aubry, New South Wales 2640; Ron Langman, 060-247-128



**Canberra Off-Road Model Car Club**, Goyder St., Narrabundah, ACT 2604; Graham Brown, 61-2-241-3070



**Carine R/C Model Car Club, Inc.**, Penistone Reserve, Greenwood, Western Australia; David Werner, 61-418922966



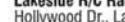
**Castle Hill Radio Control Off Road Car Club**, Field 4 Fred Carteron Park, Castle Hill, New South Wales 2754; Peter Ellis, 0412 257 353; email: chrcorcc@next-century.com.au; web: www2.nextcentury.com.au/chrcorcc



**Central Coast ORRCC, EDSACC Sports Complex**, Bateau Bay, New South Wales 2261; Peter J. Knight, 61-43-693-698



**Illawarra RCECC**, Croome Sporting Complex, Albion Park Rail, New South Wales 2527; Mel or Andrew, 042-714-683



**Lakeside R/C Racing Car Club**, Hollywood Dr., Lansvale, New South Wales 2166; R. Bartolozzi, 62-2-907-9800



**Melton Electric Circuit Car Association**, Safeway Car Park, Corner High St. and Coburns Rd., Melton, VIC 3337; Arthur Joslin, 61-3-974-8805



**NSW Indoor R/C Raceway**, Level 4, 208 Forest Rd., Hurstville, Sydney 2220; Anthony Lee or Walter Ly, 02-9585-8810



**Penfield Park, DSTO Complex**, Salibury, Adelaide, South Australia 5108; Trevor UNew South Walesorth, (618) 8289-5010



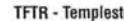
**Pro-Sport Racing**, 728 Pine St., Green Bay, Wisconsin 54301; Chuck or Terry, (920) 494-1233 or (920) 469-5566



**Pine Hills**, Cnr Jinkin Track & Bunya Rd, Bunya, Brisbane, Queensland 4053; Jeff Chandler, 07 3355 7476, 041 878 3201; email: smeg666@bigpond.com; web: www.gofast.to/race



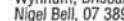
**R.C. Speedway**, 259 King Street, Newcastle, New South Wales 2300; Andrew Dillon-Smith, 02-49265968; (05) 011-831-9431



**TFTR - Templestowe Flat Track Racers**, Corner of Porter St. and Williamson Rd., Templestowe, Victoria 3106; Nigel George, see website; email: tft@imagefile.net; web: drive.tftfr.com



**The Bayside Raceway**, Wynnun Manly Workers Club, Bogor St., Wynnun, Brisbane, Queensland 4178; Nigel Bell, 07 3893 1864; email: mw1r@one.net.au



**Wee Waa's Offroad RC**, KYEEMA, Burrun Junction, N.S.W. 2386; Shane, 61-02-6796-1339



**Wodonga R/C Car Club**, 11 Murphy St., Wodonga, VIC 3690; Ron Langman, 61-20-247-128



## AUSTRIA

**RMC-Wien**, Aspernstrasse 5, Vienna A-1220; Herbert Holze/Martin Hrzak, +43-664-4730376



**R.O.A.R. (Radio Operated Auto Racing)**, Garfield Sobers GYM, St. Michael; Marva Clarke, (246) 427-3907



## BELGIUM

**ATR-Alka-Tele-Racing**, 3570 Stationstraat 21, Limburg; Alken, 0032-11-25-49-03



**Cartroubles Indoor Buggy Track**, Jan Moonstraat 52-56, Wommelgem 2160; Guy Ernes, 32-3-326-51-15; fax 32-3-326-51-01



**MBV-Kampenhout**, Tenierslaan 28, Kampenhout B1910; Frank Mostrey, 0-16-65-75-18



**Model Racing Club Oudenaarde** (MRCO), Eindrieskaai-Scheldelaan, 9700 Oudenaarde; Nicky Delmote, and fax: 9700 55 30 36 25; email: mrcracing@hotmail.com; web: mrcracing.tripod.com



**MRCZ, Centrum, De Burg**, Montie, 75-71-63

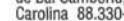


**R.C.R.**, Peilstraat 43, Retie 2470; A. Eelen, 32-14-379685



## BRAZIL

**Amoc Cassociaao de Modelismo B. Cambori**, Junto ao Parque Ecologico de Bal Cambori, Bal Cambori, South Carolina 88.330-000; Leo Cesar, (047) 366-0001



**Brasilia R/C Motor Circuit**, Estacionamento do Estadio Mane Guarincha, Brasilia, DF 70000; Alexandre (Alex), 55-061-273-7205



**C.A.R.A. Curitiba Associaao de Automodelismo**, Curitiba, Paraná, 82000-530; Ronald Assumpcio, 55-41-354-2804



**Electric Car Club R/C Santos**, Av. Bernardino de Campos, 227, Santos, SP 11065-001; Estevam or Arnaldo, 55-013-232-2536



**Hobby Center**, SQS.210 BLH, Apt. 204, Brasilia, DF 70.273, 061-242-0488



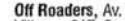
**Hobby Center**, SQS.210 BLH, Apt. 204, Brasilia, DF 70.273, 061-242-0488



**Hobby Planet Racing Club**, Rod Dom Pedro 1, KM 1315, Campinas, SP 13091901; Daniel, Helio, Luciano, 019 258 2768



**Jungle Drive**, Rua Alberto Maranhao, No. 219 Icha do Gov, Rio de Janeiro, PB 21940-490; Paulo Brito, (021) 396-0851 or (021) 393-7449



**Off Roaders**, Av. Guilherme Dummont Villars, 317, Sao Paulo, CEP 05640; Waldir Ielpo, (055) 011-260-5628; fax (055) 011-831-9431



## CANADA

**Action Weelz**, 462 Turcotte, Vanier, Quebec G1M 1R6; Regent Tardif, (418) 527-5756



**ATN**, Auto Teleguidee Nicolet, 2000 Rue Paul Hubert, Saint-Jean-Baptiste-de-Nicolet, Quebec J3T 1E5; Louis Durand, (819) 293-8097



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**Interior R/C Raceway**, 34-1605 Summit Dr, Kamloops, BC V2E 2A5; Martin Vanneuwenhuizen, (604) 374-1268 or (604) 374-8458



**IROCC**, 3005 Cressida Cres., Victoria, British Columbia V8B 5W9; Daryl Jones, (250) 478-8013; email: djones@islandnet.com



**Johns Jump & Grind R/C Track**, 1795 Black Rock Rd., Waterville, Nova Scotia B0P 1V0; John Egan, 902-538-8920; email: john.egan@ns.sympatico.ca



**J-T International Raceway**, 127 Milligan Lane, Napanee, Ontario K7R 8A1; N. O'Neill, (613) 354-0099



**Kays Hobbies R/C Raceway**, 36 McGivern St. Box 162, Moorefield, Ontario N0G 2K2; Doug Kays, 519-638-9990; email: dougk@golden.net; web: www.kayshobbies.place.cc



**Leading Edge R/C Speedway**, 731 Gardiners Rd., Kingston, Ontario K7M 3Y5; Mike and Tony Daicar, 613-389-4878



**Mid-Canada R/C Auto Racing**, Hwy. 1 East, Winnipeg, Manitoba R2J 4E6; Jason McBride, 204-231-3324; email: hjmcbride@escape.ca; web: www.geocities.com/midcanadarcautoring



**Minatures & Passions**, 204 St. Charles, #103, Ste. Therese, Quebec J7E 2B4; Gilles Lachance, (450) 979-7989



**Prince George Radio Controlled Car Club**, 202 Explorer Cres., Prince George, British Columbia V2N 5R8; Doug Waller, (604) 561-0035



**Quintax Speedway**, 610 Dundas St. East, Belleville, Ontario K7K 2M1, (613) 962-1414; fax (613) 962-7306



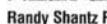
**R.C. G.E.A.R.S.**, 87 Castlebrook Way NE, Calgary, Alberta T3J 2A7; Paul Parks, (403) 285-0170



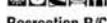
**R/C Champ Raceway**, 670 Progress Ave., Rear Unit #13-16, Scarborough, Ontario M1H 3A4; Ben, Matthew or Louie, (416) 289-8717; web: www.rchamp.com



**R/C Fanatic**, 3016 Boulevard Du Jardin, Charlesbourg, Quebec G1G 3Y4; Jean-Pierre Boulet, (418) 623-0404; email: jaqueskirouag@vipertron.ca



**Randy Shantz Raceway**, 1015 W. 14th St., North Vancouver, British Columbia; Steve Mulhall, (604) 945-3888



**Recreation R/C Raceway**, Hwy 16 and Ferry Ave., Prince George, British Columbia; Doug Waller, (604) 561-0035



**Roussillon Hobby Track**, 177-D St-Jean Baptiste, Chateauguay, Quebec J6K 3B4, (514) 698-2151



**Shadtree Raceway**, R.R. #4, 22566 Stage Rd., Thanesville, Ontario; Darrin Charbonneau, (519) 692-5211



**Snye Wreck RC**, RR#1, St. Regis, Quebec; Aimee Mitchell



**South Okanagan Roadhogs**, Skaha Lake Rd., Penticton, British Columbia; Willie Lemm, (604) 492-5698



**Steeltown Speedway**, 3580 Kirk Road West, Binbrook, Ontario L0R 1C0; Trevor Harrison, 905-692-3407 (ask for Trevor); email: the\_prodigy@zdnetbox.com; web: www.geocities.com/s\_speedway



**Sudbury Ontario Auto Racing**, 3159 Daniel Ave., Val Caron, Ontario P3E 1E6; Brad Peacock, 705-897-1435(Brad); email: bradbrendakyle@sympatico.ca



**The All New R.C. World**, 2633 Hwy. #6, Mt. Hope, Hamilton, Ontario L0R 1W0; Dave, Larry or Brian, (905) 765-2301 or (905) 333-3297



**Vancouver R/C Road Racers**, #100-2733 Barney Hwy., Coquitlam, British Columbia V3E 1K9; Roger Brown, (604) 945-3888



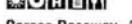
### CHILE

**OFF/ON ROADERS**, Llama Por Telefono, Santiago, Region Metropolitana 1; Mauricio Wetter Ferrer, (56) 09-8404174; email: mwetter@entelchile.net; web: 38939070.home.icq.com/



### COLOMBIA

**Club De Automodelismo Colombiano**, Centro Comercial Guaymaral, Kilometro 16 Autopista Norte, Sanatafe De Bogota D.C., Bogota; Jorge Delgado, 6-130588



**Garoso Raceway**, Avenida Libertadores con Diagonal Gran Colombia, Cucuta; Gabriel Rodriguez, 975-751892



### COSTA RICA

**Club de Automodelismo RC10 Costa Rica**, Villa Olímpica, Desamparados, San Jose, San Jose; Osvaldo Averhoff A., (506) 2862353; email: nitrocr@hotmail.com



### CYPRUS

**Racing Model Club**, Kennedy Ave. N. 42, Nicosia; Andrea Sotiriou, 493186; fax 493229



### DENMARK

**Brondby Motor Club**, Roskildevej 460, Brondby 2605; Soren Boy Holst, 45-362-472-462



**Holstebro R/C Buggy Club**, Mørtzsvæj 7500, Holstebro 2600; Michael Brusholt, 45-97-412-734



**Klub 144 Raceway**, Bagsvaerdvej 144A, Lyngby 2800; Henrik Carstens, 45-42-88-3691



**Rainbow Raceway**, Eriksvej. 9 Glostrup, Copenhagen 2600; P. Christiansen, 45-52-488-504



**Thor Minirace Odense**, Sohusvej 255, Alleso, Odense; Ulrich Rasmussen, 45-630-707



### DOMINICAN REPUBLIC

**Adoca R/C Speedway**, Feria Ganadera, Santo Domingo, (809) 220-5266



**La Barranquita R/C International Speedway**, TrackAddress, Santiago, (809) 582-2303



### ENGLAND

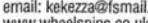
**Chessington Radio Car Club**, Riverhill Estate, Worcester Park Rd., Worcester Park, Surrey; Ian Spiller, 0252-20657



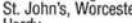
**Hampshire Racing Center**, Viables Craft Center, Basingstoke, Hampshire; Tony Eudola, 44-1276-61402



**Hinckley RCCC**, Three Pots Inn, A5 Wathing St., Hinckley, Leicestershire; Bruce, 01455-890580



**Netterton Market Model Car Club**, The Netterton Market, Norwich, Hampshire NR16 2JU; Lee Shore, 01760 724857; email: kekekaz@fsmail.net; web: www.wheelspins.co.uk



**Worcester Model Car Club**, Christopher Whitehead High School, Bromwich Rd., St. John's, Worcester WR2 6Q9; Mr. Hardy



### FRANCE

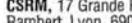
**Auto Electron**, 35, rue B. de Ventadour, Limoges 87000; M. Boudoul, 55 062763



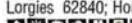
**Auto Model Club de l'ouest**, 45 rue de Menez, Lojerhet 29470; Peuziat Michel, 98071764



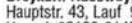
**Crame Roncq**, 64 Rue Du Bucquerel, Mons le Baroeul; Michael Hondekyn, 33-0324755



**CSRIM**, 17 Grande Rue Ave., de Saint-Lambert, Lyon 69009; Pierre-Yves Monfray, 06 78880852

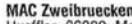


**Lorges Bolides**, Rue Beau-Riuz, Lorges, 62840; Hourdequin Sabine



### GERMANY

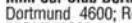
**Dreykorn Raceway**, Heuchlinger-Hauptstr. 43, Lau 91207; Hermann Hensel, 0913-23-81457



**MAC Zweibruecken**, Mauerstr. 19, Hoeffler 66909; Matthew Bailey, 011-49-6384-1388; email: matthew\_w\_bailey@hotmail.com; web: www.geocities.com/matthew\_w\_bailey



**MC Kohn**, Bottgerstr, Worringen 50769; Ralf Habel, 02733-477493



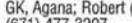
**Mini Car Club**, Dortmund, Kortschstr. 4, Dortmund 4600; Roland Schwan, 0231/213609



**Oberhausen-Alstaden**, Am Fesderturn., Oberhausen 46099; Josef Holl, 0208-403676



**Panik Raceway**, Teutonen Str. 5, Troisdorf 53844; Guido Kraft, 0224-400259



### GUAM

**R/C International Raceway**, P.O. Box GK, Agana; Robert (Buddy) Simpkins, (671) 477-3207



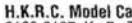
### HONDURAS

**Autodromo Accion**, Quinta Santa Maria, San Pedro Sula; Colonia Rivera Hernandez, Eduardo Hondal, (504) 52-2061



### HONG KONG

**H.K.R.C. Model Car Racing Club**, Lot 2130-2131, Ko Po Tsuen, Sha Tau Kok Rd., N.T., Hong Kong; Alex Chan, (852) 659-2822



**Kingsville Buggy Arena**, Wong Chuk Yeung Village, Shatin; Pak Yeung, (852) 607-0828

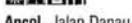


### INDONESIA

**1st Circuit**, Kompleks Villa, Kalijudah Indur, Surabaya, 62-31-5681965



**Ancol**, Jalan Danau Sunter Selatan Block 03/60, Jakarta, ACT. 14350; Andre Suprayana, 62 21 6506040; email: andre@cbn.net.id; web: www.avus.com/ja



**Cipaku Indah Speedway**, Jl Cipaku Indah II/2, Bandung 40143; Erwin Lewi, 62-22-218-228, fax - 62-22-210-223



**Jakarta International Twin Circuit**, Gelora Senaya Unit 4, Dki Jaya, Jakarta; Fayakhan Andriadi, 6221-751243g; email: fayakhan@sooon.com



**Karinda Off-Road R/C Car Model Circuit**, Perumahan Bumi Karang Indah, Jakarta-Selatan 12440; Wiwid W. Soedarmadi, 62-21-7900878



**Worcester Model Car Club**, Christopher Whitehead High School, Bromwich Rd., St. John's, Worcester WR2 6Q9; Mr. Hardy

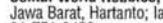


### INDONESIA

**Pondok Cabecircut**, JL. Kunir No. 83, Pondok Cabe, Ciputat, Jakarta; Ali Agus Salim, 7403568-9; fax 7491533



**Sentul World Hobbies**, Citeureup Bogor Jawa Barat, Hartanto; Ian Sentul, 42 62-2751-2439



**Ircca Off-Road**, TrackAddress, Rahanaha; Yaron Zafris, (972) 030549337



**Nahshoneat**, Abba Nihil Silver Str. 64, Haifa 32809; Golan Levy, (972) 039386444 or (972) 04231252



**AF MODELS RINGS**, VIA ANTICA DI RIVOLI 21, COLLEGNO, ACT 10093; ADRIANO FORATO, +39.335.825.58.434; email: afmodels@m-net.it; web: www.afmodels.com



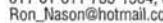
**ITALY**  
**AF MODELS RINGS**, VIA ANTICA DI RIVOLI 21, COLLEGNO, ACT 10093; ADRIANO FORATO, +39.335.825.58.434; email: afmodels@m-net.it; web: www.afmodels.com



**AF MODELS RINGS**, VIA ANTICA DI RIVOLI 21, COLLEGNO, ACT 10093; ADRIANO FORATO, +39.335.825.58.434; email: afmodels@m-net.it; web: www.afmodels.com



**Yamaha R/C Track**, PSC 561, Box 978 FPO AP 96310-0978; David T. Eck, 81-617-53-3626



**Xiwakan R/C Track**, PSC 561, Box 978 FPO AP 96310-0978; David T. Eck, 81-617-53-3626



**Zama Off-Road Raceway**, 17th ASGCM Unit 45013, Box 3232 FPO AP 96338; Ken Campbell, 81-3117-63-8478



**Yokota R/C Racers**, PSC #78, Box 3889, Tokyo FPO AP 96326; Donnie Leornas, 81-3-11-757-2040 or 755-2272



**Zama Off-Road Raceway**, 17th ASGCM Unit 45013, Box 3232 FPO AP 96338; Ken Campbell, 81-3117-63-8478



**KUWAIT**  
**Inferno DX 4WD Track**, P.O. Box 9167, Ahadi 61002; Yousuf Acqatari



**LEBANON**  
**Wild Willy RCC**, Oscar St-Jal Eddie, Beirut, 00961-4-403751



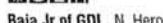
**MALAYSIA**  
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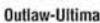
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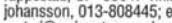
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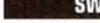
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587-1186



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Petchakasem Rd., Plong Maduea,  
Maung, Thailand 73000; Mr. Supakiet  
Thuwachardenpanich, 66-34-258808;  
email: hobbica@yahoo.com



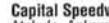
Hot Rod Raceway, 6/3 Soi Soontjai  
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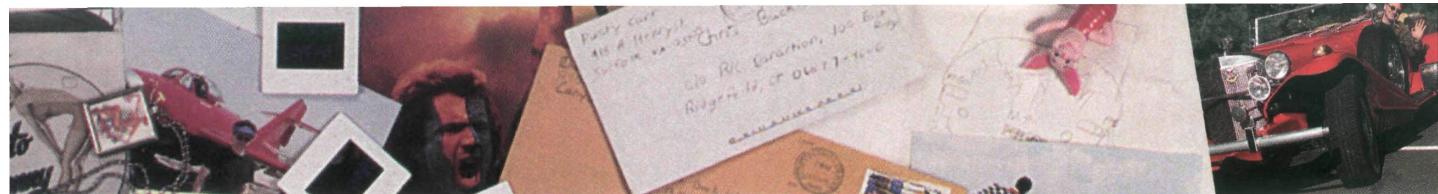
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# Chris's Back Lot

The opinions expressed on this page do not necessarily represent the opinions of the entire RC Car Action staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. My email address is: chris@airage.com

BY CHRIS CHIANELLI

Notice my email-FULL! I still have email from the early days, right after Al Gore invented the Internet.

Stack of engines: two O.S.; one Megatech. Top one is .40 4-stroke for MP-6 at other side of room.

Luna's chew toy now passed down to Sophie.

My window, through which I stare wistfully each day and think, "I wish they'd let me out; I want to be free, like my feet."

"William Wallace," "Braveheart" poster. A story about real men.

Mars Attacks action figure. On my list of all-time favorite movies, "Mars Attacks" is a close 80th.

Made-in-China Barbie doll. Martians get all the hot babes.

## The Model-Man's Lair

Judge Anderson poster. Rumor has it, she has a crush on Commando Chianelli.

Pen-and-ink drawing of beach scene. Wish I were there instead.

Plant cutting sitting in water for 4 years.

Kyosho Stearman PT-17 ARF kit. I'm going to build that one day.

Excalibur (car not the sword) dealer promo material.



Packing from an O.S. .40 4-stroke box.



DuraTrax by Futaba transmitter.

Guess.



Printout of the "Back Lot" you are now looking at.

Coffee. Is that from this morning, or last week? Judging by the floating garden, I'd say last week. I'll have Kevin, my food-tester, take a sip.

Six mounted wheels—none matching.

Japanese magazines. Excellent spy aids so I can bring you product info before the American distributors want me to tell you it.

No shoes. Feet should be free. And, I'll have you know, my feet smell like springtime. Glade should sell Chris Chianelli's Feet-scent plug-in air fresheners.

Megatech Nitro Razor. It's one of the most complete nitro RTRs. I'll have Steve break it in for me.

Photos, magazines, CDs, other sundry publishing crap.

One-tenth-scale bodies: '64 Stingray, Porsche 911 GT-1, Cobra Daytona.

Abrams A1M1 tank. That comes built.

Saito 3-cylinder 4-stroke radial box with pilot head and side cutters on top.

Kyosho MP-6 waiting for .40 4-stroke conversion.

More Wallace and Gromit.

Parts of an O.S. CV I'll probably never reassemble.

CA glue accelerator.